

# **Agricultural Chemical Usage**

## **1998 Vegetable Summary**

**New York and Major States**

**July 1999**



NEW YORK  
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**1998**  
**AGRICULTURAL CHEMICAL USE**  
**ESTIMATES FOR VEGETABLE CROPS**

## **Overview**

This report, which summarizes the use of agricultural chemicals on vegetables in 1998, is issued by the New York Agricultural Statistics Service (NYASS) as part of its series on Agricultural Chemical Usage. Other publications in the series present statistics for on-farm agricultural chemical usage for field crops and fruits.

Information in this report is obtained from a survey funded by the USDA Pesticide Data Program. The purpose of the Pesticide Data Program is to provide reliable pesticide use statistics and enhance the quality of information on pesticide residues in food. Multiple agencies within the USDA administer this program. This data series addresses the increased public interest in agricultural chemical use and provides the means for government agencies to respond effectively to food safety and water quality issues.

The National Agricultural Statistics Service (NASS) collects on-farm agricultural chemical use information to support the evaluation of food safety and water quality issues. The Economic Research Service (ERS) conducts research on the impact of alternative pesticide regulations, policies, and practices. The Agricultural Marketing Service (AMS) conducts a pesticide residue monitoring program.

This report includes farm use of 1998 crop year pesticide and fertilizers for selected vegetable crops in 16 major producing States.

## **Highlights**

**Snap Beans:** New York growers applied herbicides to 94 percent of the fresh market acreage in 1998, compared to 69 percent in 1996. Insecticides were applied to 39 percent of all acres planted compared to 43 percent two years earlier. Fungicides were used on 35 percent of the total acreage planted compared with 45 percent in 1996. In 1998 nitrogen, phosphate and potash were applied to 71 percent to the acreage planted. In the seven states surveyed, herbicides were applied to 32 percent of the fresh market acreage, while 80 percent of the acreage received insecticide treatments. Fungicides were applied to 74 percent of the acreage.

In New York, the major herbicides used were metolachlor, applied to 54 percent of the acreage, followed by trifluralin, used on 50 percent of the acres. Bentazon followed far behind at 4 percent applied to the fresh market snap beans. Carbaryl was the most used insecticide, and it was applied to just 3 percent of the acreage planted.

Nearly all of the processing snap bean acreage in New York, 98 percent, was treated with herbicides. Forty percent of the acreage received insecticides. Fungicides were applied to 36 percent. All of acres planted received nitrogen, phosphate and potash. In the eight processing snap bean states, 92 percent of all acres were treated with herbicides, 80 percent were treated with insecticides and 46 percent were treated with fungicides.

Three primary herbicides were used in New York. Trifluralin and EPTC were most commonly used as they were applied to 93 percent of the acreage and 92 percent, respectively. The third most used chemical was metolachlor and it was applied to 83 percent of the processing snap beans. Bentazon was also used, on 62 percent of the acres and pendimethalin was applied to 11 percent of the acreage. The primary insecticide used was acephate and it was applied to 15 percent of the planted acreage in New York. Vinclozolin was the primary fungicide, used on 36 percent of the acreage.

In the major processing snap bean states, pesticides were put on 92 percent of the acres, 80 percent of the acreage received insecticides, and 46 percent received fungicides. The major herbicides applied were trifluralin applied to 56 percent of the acres, and both EPTC and metolachlor used on 53 percent of the acreage. Insecticides applied included acephate on 51 percent of the acreage, followed by dimethoate and methyl parathion at 24 and 22 percent coverage, respectively. Vinclozolin was the leading fungicide and was applied to 22 percent of the acreage.

**Cabbage:** New York, the second ranked fresh cabbage producing state, applied herbicides to 91 percent of the acreage planted, insecticides to 98 percent, and fungicides to 21 percent of the cabbage planted. In the nine major producing states, the percent of acres receiving herbicides, insecticides and fungicides were 72 percent, 96 percent and 43 percent, respectively.

The top used herbicide in New York was trifluralin which was applied on 89 percent of the cabbage. Metolachlor was a distant second, used on 12 percent. Oxyfluorfen and napropamide were also used in small quantities to 3 and 2 percent of the acres, respectively.

In the major states, herbicides were applied to 72 percent of the fresh market cabbage acres. The most commonly used herbicide was trifluralin at 42 percent followed by oxyfluralin which was applied to 13 percent of the acreage. Insecticides were applied to nearly all the acreage with 96 percent coverage reported. The most commonly used insecticides included: Bacillus thuringiensis on 69 percent of the acreage, lambda-cyhalothrin on 37 percent, and esfenvalerate on 29 percent. Fungicides were applied on 43 percent of the acreage. Chlorothalonil was most commonly used with 35 percent of the acres, maneb was utilized on 10 percent of the acreage.

Herbicides and insecticides were both widely utilized in the two states surveyed on cabbage for kraut. Overall, herbicides were applied to 95 percent of the total acreage with 90 percent being applied to New York acreage and all Wisconsin acres receiving herbicide treatments. Trifluralin was the most utilized herbicide as it was applied to 86 percent of the acres, Metolachlor was next, being applied to 54 percent and clomazone was applied to 39 percent of the treated acres. Insecticides were applied to nearly all the acreage in both New York and Wisconsin. Lambda-cyhalothrin was applied to 80 percent of the acreage in those two states followed by dimethoate which was applied to 36 percent, and permethrin on 21 percent. Fungicides were used more sparingly, being applied to only 17 percent of the acreage. Chlorothalonil was the main fungicide applied.

**Carrots:** Fresh market carrots were treated with herbicides on 83 percent of the acres planted, in New York. There were not enough reports to publish data on insecticides and fungicides on fresh market carrots and on processing acreage. Nitrogen, phosphate and potash fertilizers were applied to 87 percent of the New York acreage.

In the seven states surveyed, most of the carrot acreage for fresh market production was treated with herbicides. Herbicides were applied to 92 percent of the total surveyed acreage. The two herbicides used most were linuron on 90 percent of the acreage and trifluralin on 54 percent. Insecticides were used on 42 percent of the acreage. Diazinon, used the most, was applied to 17 percent of the crop while esfenvalerate

went on 14 percent of the acres. Fungicides were used on 64 percent of the acreage. Mefenoxam was the most utilized covering 36 percent of the acreage followed by sulfur with 19 percent coverage, chlorothalonil with 18 percent and iprodione on 16 percent.

Herbicides were also widely utilized on carrots for processing acreage. Not enough reports were available to publish New York data. In the six primary states, applications were reported on 88 percent of the surveyed acreage. Linuron was the predominant choice covering 86 percent of the acreage followed by fluazifop-P-butyl on 24 percent, and trifluralin on 21 percent. Insecticides were applied to 45 percent of the acres. Esfenvalerate was used most being applied to 31 percent of the acres. Fungicides were applied to 60 percent of the acreage. Chlorothalonil was the most utilized covering 43 percent of the acreage followed by copper hydroxide on 9 percent.

**Cauliflower:** New York growers applied herbicides to 56 percent of the crop, insecticides to 82 percent and fungicides to 61 percent. Nitrogen, phosphate and potash were applied to 99 percent of the acreage.

The most widely used herbicides were oxyfluorfen on 34 percent of the acres, and DCPA on 22 percent. A wide array of insecticides was utilized including: chlorpyrifos on 61 percent of the acreage, oxydemeton-methyl on 56 percent, imidacloprid on 53 percent, and esfenvalerate with 41 percent of the acres covered. Fungicides were used less, applied to 21 percent of the acreage. Chlorothalonil and maneb were applied to 9 and 6 percent of the acres, respectively.

**Sweet Corn:** New York sweet corn growers applied herbicides to 95 percent of the fresh market sweet corn acreage. Only growers in Oregon applied herbicides to more fresh market acreage. Atrazine was most often used in New York since it was applied to 85 percent of the acres. Metolachlor followed and was used on 71 percent of the sweet corn. Alachlor was a distant third, being applied to 16 percent of the acreage. In the twelve states surveyed, 81 percent of the fresh market acreage was treated with herbicides. Atrazine was the most common chemical and was put on 57 percent of all the sweet corn acreage.

Insecticides were widely used also, being applied to 85 percent of the New York acreage. The most commonly applied were lambda-cyhalothrin on 60 percent and thiodicarb on 51 percent. Those two were followed by permethrin on 15 percent of the sweet corn and methomyl on 13 percent of the acres. In the twelve surveyed states, insecticides were put on an average of 86 percent of the land with methomyl most used on 48 percent of the area.

In New York, 82 percent of the processing sweet corn acreage received herbicides, 81 percent were treated with insecticides and 17 percent of the acres had fungicides applied. Those numbers compare

with 94 percent of the processing sweet corn acreage receiving herbicides in the six major producing states, 74 percent of the area treated with insecticides and 10 percent receiving fungicides.

Atrazine was the leading herbicide used in New York, applied to 69 percent of the sweet corn. Metolachlor was second on 52 percent of the area. Lambda-cyhalothrin was the predominant insecticide. It was applied to 68 percent of the acreage with tefluthrin coming in second on 11 percent of the acres followed by cyfluthrin on 10 percent of the acres. The single most used fungicide was propiconazole, and it was applied to 17 percent of the sweet corn.

**Cucumbers:** Fresh market cucumbers in New York received nitrogen, phosphate and potash on 98 percent of the 3,800 acres. Herbicides were applied to 73 percent of the crop. Insecticides were put on 28 percent of the planted area. Carbaryl was the most used and insecticide applied to 5 percent of the acreage. Chlorothalonil was the most often applied fungicide; put on 15 percent of the cucumbers.

**Lettuce, Head:** New York lettuce growers applied insecticides to 97 percent of the crop. That level compares with 95 percent of the area in the four states surveyed being treated with insecticides. There was an insufficient number of reports to provide data on herbicide and fungicide applications.

**Onions, Dry:** New York onion growers applied herbicides to 97 percent of the acreage compared to 91 percent in 1996. Insecticides were applied to 99 percent, fungicide to 99 percent and other chemicals to 28 percent of the planted area. A total of 291,000 pounds of total pesticides were applied to New York's 13,100 onion acres.

Pendimethalin was the herbicide of choice on 97 percent of the onion acres. Oxyfluorfen was next on 53 percent of the land and fluazifop-P-butyl followed on 47 percent of the acreage. Three insecticides were closely used. Lambda-cyhalothrin was most used on 51 percent of the onions planted with chlorpyrifos and permethrin sharing second with usage on 49 percent of the crop. The major fungicide of choice was chlorothalonil, applied to 78 percent of the acreage. Mancozeb was next on 56 percent and iprodione on 44 percent of the crop. Under Other Chemicals, maleic hydrazide a growth regulator was used on 26 percent of the onion acreage.

**Green Peas, Processing:** New York growers applied herbicides to 95 percent of the processing green pea planted acreage. This is up 8 percent from 1996. There were 18,300 pounds of herbicides applied in 1998, 5,100 pounds more than in 1996.

Across the five states surveyed herbicides were applied to 94 percent of the planted acreage of processing green peas. The application percentages ranged from 92 percent in Minnesota to 98 percent in Washington. Imazethapyr received the most coverage, on 32 percent of the crop. Trifluralin, at 31 percent coverage, and pendimethalin, at 28 percent, were the next two most used herbicides. Insecticides were applied to 38 percent of the acreage. Dimethoate was applied to 22 percent and esfenvalerate was applied to 20 percent of the green pea acreage. Fungicide use was minimal.

**Strawberries:** New York growers applied herbicides to 74 percent of the 1,700 acres of strawberries in 1998. Insecticides were applied to 71 percent of the acreage and fungicides to 55 percent. New York growers applied fungicides to the lowest percentage of planted acres than all other states surveyed. Florida applied at least one fungicide to all of its acres.

In the 9 states surveyed, herbicides were used to treat 35 percent of the strawberry acres. Napropamide and paraquat were each used to treat 14 percent of the acreage. Insecticides and fungicides were more common forms of pesticides applied to strawberries. Eighty-nine percent of the acreage was treated to control insects; abamectin was used on 47 percent. Fungicides were used on 91 percent of the strawberry acreage. Captan was the most common fungicide, being used on 75 percent of the acres. Other common fungicides: benomyl, iprodione, myclobutanil, sulfur, thiram, and vinclozolin. Other types of chemicals were applied to 63 percent of all planted strawberry acres. Half of this acreage was treated with methyl bromide while 37 percent was treated with chloropicrin.

**Tomatoes:** Fresh market tomatoes were treated with herbicides on 37 percent of the acres planted in New York. New York growers applied insecticides on 49 percent of the acreage and fungicides on 70 percent of the tomato acreage. These percentages are considerably lower than the percentages that comprise the national acreage. Herbicides were applied to 57 percent of the fresh market tomato acreage. Metribuzin was applied to 24 percent of the acreage, and paraquat was applied to 23 percent. Insecticides were applied to 92 percent of the acreage with Bacillus thuringiensis used the most, on 52 percent. Esfenvalerate and permethrin were the next most common insecticides, being used to treat 39 and 37 percent, respectively. Fungicides were applied to 94 percent of the acreage. Copper hydroxide was the most common fungicide, being applied to 60 percent of the total acres. Mancozeb and chlorothalonil usage followed at 52 and 47 percent, respectively. For the other chemical class, nearly half of the total acres were treated. Methyl bromide was used most often, 47 percent of total acreage, mainly in Florida, Georgia and North Carolina.

**Beans, Snap, Fresh: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
		Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent
CA	4,700	86	452	75	214	66	167
FL	36,000	99	4,270	98	5,178	98	5,806
GA	13,000	100	1,035	96	486	100	1,251
MI	1,800	92	62	93	96	88	91
NJ	4,000	100	192	100	286	100	286
NY	5,400	71	177	71	262	71	208
NC	7,000	97	370	95	385	88	581
Total	71,900	96	6,558	94	6,907	93	8,390

**Beans, Snap, Fresh: Fertilizer Primary Nutrient Applications,**  
 New York and Total, 1998

Primary Nutrient	Planted	Area	Appli-	Rate per	Rate per	Total
	Acreage	Applied	cations	Application	Crop Year	Applied
New York:	Acres	Percent	Number	Pounds per Acre		1,000 Lbs
Nitrogen						
Phosphate						
Potash						
Seven States 1/	71,900					
Nitrogen		96	4.3	22	95	6,558
Phosphate		94	3.3	31	103	6,907
Potash		93	3.6	35	126	8,390

1/ States included are CA, FL, GA, MI, NJ, NY, NC.

**Beans, Snap, Fresh: Pesticide, Total Acreage,**  
 Percent of Area Receiving Applications and Total Applied,  
 States Surveyed and Total, 1998

State	Planted Acreage	Area Receiving and Total Applied					
		Herbicide	Insecticide 1/		Fungicide	Other Chemical	
			Acres	Percent	1,000 Lbs	Percent	1,000 Lbs
CA	4,700	19	1.5	33	2.4	10	0.7
FL 2/	36,000	16	5.9	89	129.5	95	636.4
GA 2/	13,000	34	6.0	88	8.0	93	38.7
MI 2/	1,800	80	3.0	53	1.1		
NJ 2/	4,000	10	0.5	80	1.6		
NY	5,400	94	10.8	39	2.0	35	3.9
NC	7,000	67	7.3	91	2.3	68	39.8
Total:	71,900	32	35.0	80	146.9	74	719.7
						1	35.1

1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

**Beans, Snap, Fresh: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	: Area : Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
<b>Herbicides:</b>	:				
Bentazon	:	2	1.0	0.92	0.97
EPTC	:	3	1.0	1.45	1.46
Glyphosate	:	1	1.0	0.63	0.65
Metolachlor	:	15	1.0	1.68	1.74
Pendimethalin	:	9	1.0	0.91	0.96
Sethoxydim	:	1	1.0	0.13	0.13
Trifluralin	:	9	1.0	0.71	0.74
	:				
<b>Insecticides:</b>	:				
Acephate	:	16	1.8	0.58	1.06
Bt (Bacillus thur.) 2/	:	12	2.4		12.2
Carbaryl	:	5	1.6	0.77	1.28
Diazinon	:	2	1.0	1.32	1.38
Dimethoate	:	8	1.9	0.47	0.91
Endosulfan	:	20	3.3	0.68	2.25
Esfenvalerate	:	25	6.9	0.04	0.28
Malathion	:	*	1.4	1.46	2.18
Methomyl	:	39	5.7	0.47	2.70
Permethrin	:	*	1.2	0.16	0.20
	:				
<b>Fungicides:</b>	:				
Benomyl	:	3	1.9	0.90	1.76
Chlorothalonil	:	61	4.7	1.42	6.75
Copper hydroxide	:	24	7.1	0.50	3.59
Metalaxyl	:	13	1.0	0.17	0.18
PCNB	:	9	1.0	0.94	0.96
Sulfur	:	46	5.9	1.78	10.50
	:				

\* Area applied is less than 1 percent.

1/ Planted acres in 1998 for the 7 states surveyed were 71,900 acres.

States included are CA, FL, GA, MI, NJ, NY, and NC.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Beans, Snap, Fresh: Agricultural Chemical Applications,  
New York, 1998 1/**

Agricultural Chemical	: Area : Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
<b>Herbicides:</b>	:				
Bentazon	:	4	1.0	0.62	0.62
Metolachlor	:	54	1.0	1.78	1.86
Trifluralin	:	50	1.0	0.72	0.72
	:				
<b>Insecticides:</b>	:				
Carbaryl	:	3	1.3	0.93	1.29
	:				

1/ Planted acres in 1998 for New York were 5,400 acres.

**Beans, Snap, Proc.: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
		Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent
CA	1/	86		50		50	
IL	14,700	97	3,212	69	461	61	887
MI	24,000	99	1,245	85	908	79	1,597
NJ	1,500	100	52	100	45	100	56
NY	21,200	100	528	100	1,239	100	798
NC	1/	100		100		100	
OR	23,300	99	2,024	99	3,098	94	1,761
WI	66,900	100	3,998	97	3,076	99	4,800
Total	156,300	99	11,405	92	8,930	90	10,053

1/ Planted acreage and total applied are not published to avoid disclosure.

**Beans, Snap, Proc.: Fertilizer Primary Nutrient Applications,  
New York Surveyed and Total, 1998**

Primary Nutrient	Planted	Area	Appli-	Rate per	Rate per	Total
	Acreage	Applied	cations	Application	Crop Year	Applied
	Acres	Percent	Number	Pounds per Acre	1,000 Lbs	
New York:	21,200					
Nitrogen		100	1.0	23	25	528
Phosphate		100	1.0	57	58	1,239
Potash		100	1.0	35	38	798
Eight States 1/	156,300					
Nitrogen		99	1.8	40	74	11,405
Phosphate		92	1.1	56	62	8,930
Potash		90	1.2	59	71	10,053

1/ States included are CA, IL, MI, NJ, NY, NC, OR and WI.

**Beans, Snap, Proc.: Pesticide, Total Acreage,  
Percent of Area Receiving Applications and Total Applied,  
States Surveyed and Total, 1998**

State	Planted Acreage	Area Receiving and Total Applied					
		Herbicide	Insecticide 1/	Fungicide	Other Chemical		
					Acres	Percent	1,000 Lbs
					Percent	1,000 Lbs	Percent
CA 2/	3/						
IL	14,700	76	23.4	76	41.1	68	8.3
MI	24,000	93	71.7	88	36.6	25	4.1
NJ 2/	1,500	87	2.1				
NY	21,200	98	103.9	40	13.4	36	3.8
NC 2/	3/	56		100			
OR 2/	23,300	98	114.2	95	46.1	92	12.7
WI	66,900	96	174.2	87	76.1	39	24.9
Total:	156,300	92	492.1	80	219.2	46	55.2
						1	*

\* Total applied is less than 50 pounds.

1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

3/ Planted acreage and total applied are not published to avoid disclosure.

**Beans, Snap, Proc.: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	: Area Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
<b>Herbicides:</b>					
Bentazon	: 34	1.0	0.64	0.66	35.1
EPTC	: 53	1.2	2.39	2.95	245.5
Glyphosate	: 7	1.0	0.77	0.79	8.5
Lactofen	: 4	1.0	0.12	0.12	0.7
Metolachlor	: 53	1.3	1.22	1.65	136.1
Pendimethalin	: 7	1.0	1.01	1.01	10.8
Quizalofop-ethyl	: 1	1.0	0.06	0.06	0.1
Sethoxydim	: 6	1.0	0.16	0.16	1.5
Trifluralin	: 56	1.1	0.52	0.58	50.6
<b>Insecticides:</b>					
Acephate	: 51	1.3	0.78	1.08	86.4
Carbaryl	: 12	1.1	0.95	1.07	20.0
Diazinon	: 5	1.0	0.62	0.64	4.9
Dimethoate	: 24	1.2	0.41	0.52	19.1
Disulfoton	: 8	1.3	0.97	1.35	16.9
Esfenvalerate	: 11	1.8	0.05	0.08	1.4
Ethoprop	: 9	1.0	2.14	2.14	29.7
Methomyl	: 3	1.4	0.69	1.00	4.9
Methyl parathion	: 22	1.8	0.49	0.91	31.7
<b>Fungicides:</b>					
Benomyl	: 7	1.0	0.76	0.80	8.5
Copper ammonium	: 2	1.0	0.15	0.15	0.4
Copper hydroxide	: 15	1.3	0.64	0.89	20.8
Mefenoxam	: 2	1.1	0.13	0.14	0.4
Metalaxyl	: 4	1.0	0.17	0.17	1.0
Thiophanate-methyl	: 2	1.6	0.82	1.32	3.9
Vinclozolin	: 22	1.1	0.49	0.55	18.8

1/ Planted acres in 1998 for the 8 states surveyed were 156,300 acres.  
States included are CA, IL, MI, NJ, NY, NC, OR, and WI.

**Beans, Snap, Proc.: Agricultural Chemical Applications,  
New York, 1998 1/**

Agricultural Chemical	: Area Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
<b>Herbicides:</b>					
Bentazon	: 62	1.0	0.22	0.23	3.0
EPTC	: 92	1.8	1.45	2.64	51.7
Metolachlor	: 83	2.5	0.89	2.21	38.8
Pendimethalin	: 11	1.0	1.02	1.02	2.3
Trifluralin	: 93	1.2	0.33	0.41	8.1
<b>Insecticides:</b>					
Acephate	: 15	1.2	0.63	0.77	2.5
<b>Fungicides:</b>					
Vinclozolin	: 36	1.0	0.45	0.49	3.8

1/ Planted acres in 1998 for New York were 21,200 acres.

**Cabbage, Fresh: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
		Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent
CA	14,000	96	2,451	77	1,853	84	825
FL	7,600	100	1,481	100	592	100	1,561
GA	8,500	100	1,375	72	1,360	100	1,190
MI	2,100	78	171	76	147	97	310
NJ	2,100	100	403	100	251	100	346
NY	12,600	99	1,411	97	1,495	100	2,068
NC	9,100	97	1,257	98	1,157	97	1,309
TX	9,000	98	1,153	92	939	63	254
WI	4,800	100	659	100	611	99	618
Total	69,800	98	10,361	89	8,405	91	8,481

**Cabbage, Fresh: Fertilizer Primary Nutrient Applications,  
New York and Total, 1998**

Primary Nutrient	Planted	Area	Appli-	Rate per	Rate per	Total
	Acreage	Applied	cations	Application	Crop Year	Applied
	: Acres	Percent	Number	Pounds per Acre		1,000 Lbs
New York:	12,600					
Nitrogen	:	99	1.3	81	113	1,411
Phosphate	:	97	1.0	112	122	1,495
Potash	:	100	1.1	142	165	2,068
Nine States 1/	69,800					
Nitrogen	:	98	3.4	45	152	10,361
Phosphate	:	89	1.8	73	135	8,405
Potash	:	91	2.5	52	133	8,481

1/ States included are CA, FL, GA, MI, NJ, NY, NC, TX, and WI.

**Cabbage, Fresh: Pesticide, Total Acreage,  
Percent of Area Receiving Applications and Total Applied,  
States Surveyed and Total, 1998**

State	Planted Acreage	Area Receiving and Total Applied					
		Herbicide	Insecticide 1/	Fungicide	Other Chemical		
					Acres	Percent	1,000 Lbs
CA 2/	14,000	63	16.8	89	37.1		
FL 2/	7,600	74	8.7	99	15.8	90	39.5
GA 2/	8,500	45	2.9	91	3.8	81	41.1
MI	2,100	85	2.3	97	3.8	48	1.8
NJ	2,100	47	5.0	99	3.9	44	2.7
NY	12,600	91	11.9	98	27.6	21	12.6
NC	9,100	63	7.1	97	11.1	26	7.1
TX	9,000	83	11.8	99	13.2	70	16.0
WI 2/	4,800	98	3.8	99	2.4		
Total:	69,800	72	70.3	96	118.7	43	124.1
						2	89.3

1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

**Cabbage, Fresh: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	Area Applied	Appli- cations	Rate per Application	Rate per Crop Year	Total Applied
	: Percent	Number	Pounds per Acre	1,000 lbs	
<b>Herbicides:</b>					
Bensulide	10	1.0	2.87	3.04	20.1
DCPA	7	1.0	3.40	3.50	16.6
Glyphosate	1	1.1	0.79	0.89	0.8
Metolachlor	6	1.0	1.05	1.14	5.1
Napropamide	2	1.0	1.44	1.44	1.8
Oxyfluorfen	13	1.0	0.23	0.25	2.3
Sethoxydim	1	1.1	0.23	0.26	0.1
Trifluralin	42	1.0	0.75	0.76	22.1
<b>Insecticides:</b>					
Acephate	1	2.0	0.81	1.68	0.9
Azinphos-methyl	4	1.4	0.53	0.75	1.9
Bt (Bacillus thur.) 2/	69	3.4			
Carbaryl	2	2.4	0.80	1.93	2.9
Chlorpyrifos	17	1.6	0.88	1.45	17.1
Cypermethrin	4	1.5	0.09	0.14	0.4
Diazinon	9	1.1	0.99	1.11	7.0
Dimethoate	24	2.2	0.49	1.09	18.4
Disulfoton	3	1.2	1.61	1.96	4.2
Endosulfan	10	1.6	0.67	1.09	7.8
Esfenvalerate	29	2.3	0.03	0.08	1.6
Fenamiphos	1	1.0	1.46	1.52	0.9
Imidacloprid	11	2.0	0.07	0.14	1.1
Lambda-cyhalothrin	37	2.3	0.03	0.07	1.7
Malathion	*	1.3	1.23	1.66	0.2
Methamidophos	10	1.2	0.69	0.86	5.9
Methomyl	24	2.6	0.51	1.37	23.1
Methyl parathion	1	1.0	0.39	0.39	0.3
Oxydemeton-methyl	10	1.8	0.52	0.94	6.4
Permethrin	28	2.2	0.17	0.38	7.4
Pyrethrins	1	1.0	0.007	0.007	**
Rotenone	1	1.0	0.006	0.007	**
Spinosad	16	1.7	0.05	0.09	1.0
Tebufenozide	3	2.5	0.12	0.31	0.7
Thiodicarb	13	1.1	0.73	0.81	7.1
Zeta-cypermethrin	2	1.1	0.05	0.05	0.1
<b>Fungicides:</b>					
Benomyl	1	1.0	0.41	0.42	0.3
Chlorothalonil	35	3.1	0.94	2.95	72.8
Copper hydroxide	3	3.7	0.51	1.90	3.5
Mancozeb	4	2.5	1.06	2.68	7.4
Maneb	10	5.0	1.03	5.17	35.1
Metalaxyl	5	1.6	0.12	0.20	0.7

\* Area applied is less than 1 percent.

\*\* Total applied is less than 50 pounds.

1/ Planted acres in 1998 for the 9 states surveyed were 69,800 acres.

States included are CA, FL, GA, MI, NJ, NY, NC, TX, and WI.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Cabbage, Fresh: Agricultural Chemical Applications,  
New York, 1998 1/**

Agricultural Chemical	: Area Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
<b>Herbicides:</b>	:				
Metolachlor	: 12	1.0	1.10	1.10	1.7
Napropamide	: 2	1.0	1.16	1.16	0.4
Oxyfluorfen	: 3	1.2	0.34	0.41	0.1
Trifluralin	: 89	1.0	0.83	0.83	9.3
	:				
<b>Insecticides:</b>	:				
Azinphos-methyl	: 16	1.4	0.57	0.82	1.7
Bt (Bacillus thur.) 2/:	60	2.0			
Carbaryl	: 2	2.0	1.10	2.27	0.6
Chlorpyrifos	: 22	1.0	0.98	1.02	2.8
Diazinon	: 2	2.3	0.68	1.57	0.3
Dimethoate	: 82	2.6	0.54	1.40	14.4
Endosulfan	: 9	1.3	0.77	1.01	1.2
Esfenvalerate	: 26	2.2	0.04	0.09	0.3
Lambda-cyhalothrin	: 90	2.2	0.03	0.07	0.8
Methamidophos	: 4	1.2	0.98	1.19	0.7
Permethrin	: 51	2.0	0.28	0.59	3.8
Spinosad	: 3	1.3	0.06	0.08	*
	:				
<b>Fungicides:</b>	:				
Chlorothalonil	: 18	2.5	1.51	3.80	8.5

\* Total applied is less than 50 pounds.

1/ Planted acres in 1998 for New York were 12,600 acres.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Cabbage, Kraut: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Percent of Acres Treated and Total Applied						
	Planted	Nitrogen	Phosphate	Potash			
	Acreage				Acres	Percent	1,000 Lbs
NY	3,000	100	394	85	309	100	577
WI	2,600	100	378	98	193	96	571
Total	5,600	100	772	91	502	98	1,148

**Cabbage, Kraut: Fertilizer Primary Nutrient Applications,  
 New York Surveyed and Total, 1998**

Primary Nutrient	Planted	Area	Appli-	Rate per	Rate per	Total
	Acreage	Applied	cations	Application	Crop Year	Applied
	: Acres	Percent	Number	Pounds per Acre		1,000 Lbs
New York:	3,000					
Nitrogen	:	100	1.4	90	132	394
Phosphate	:	85	1.1	107	121	309
Potash	:	100	1.1	162	193	577
Seven States	5,600					
Nitrogen	:	100	1.9	71	138	772
Phosphate	:	91	1.0	92	99	502
Potash	:	98	1.1	189	209	1,148

**Cabbage, Kraut: Pesticide, Total Acreage,  
 Percent of Area Receiving Applications and Total Applied,  
 States Surveyed and Total, 1998**

State	Area Receiving and Total Applied						
	Planted	Herbicide	Insecticide	1/	Fungicide	Other Chemical	
	Acreage						1,000 Lbs
NY	3,000	90	3.7	99	3.9	34	2.9
WI	2,600	100	6.0	100	0.8		
Total	5,600	95	9.7	100	4.7	17	2.9

1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

**Cabbage, Kraut: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	: Area Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:	:				
Clomazone	:	39	1.0	0.15	0.15
Metolachlor	:	54	1.0	1.54	1.54
Trifluralin	:	86	1.0	0.83	0.83
:					
Insecticides:	:				
Bt (Bacillus thur.) 2/	:	14	1.0		
Dimethoate	:	36	1.3	0.43	0.59
Endosulfan	:	13	1.2	0.71	0.89
Lambda-cyhalothrin	:	80	2.4	0.02	0.06
Oxydemeton-methyl	:	7	1.7	0.48	0.83
Permethrin	:	21	1.6	0.10	0.17
Zeta-cypermethrin	:	11	2.6	0.03	0.09
:					
Fungicides:	:				
Chlorothalonil	:	18	2.4	0.78	1.91
					2.0

1/ Planted acres in 1998 for the 2 states surveyed were 5,600 acres.

States included are NY and WI.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Cabbage, Kraut: Agricultural Chemical Applications,  
New York, 1998 1/**

Agricultural Chemical	: Area Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:	:				
Trifluralin	:	79	1.0	0.94	0.94
:					2.2
Insecticides:	:				
Bt (Bacillus thur.) 2/	:	27	1.0		
Endosulfan	:	24	1.2	0.75	0.94
Lambda-cyhalothrin	:	82	2.4	0.03	0.06
Oxydemeton-methyl	:	13	1.7	0.51	0.88
Zeta-cypermethrin	:	21	2.6	0.04	0.09
:					
Fungicides:	:				
Chlorothalonil	:	34	2.4	0.82	2.02
					2.0

1/ Planted acres in 1998 for New York were 3,000 acres.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Carrots, Fresh: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
		Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent
AZ	2,500	100	740	100	770	89	54
CA	86,500	96	17,304	61	8,703	21	2,102
FL	6,800	100	11	100	24	100	110
MI	5,100	92	516	83	412	92	843
NY	500	87	51	87	33	87	71
TX	4,200	100	347	100	434	75	266
WA	3,100	98	566	97	271	97	161
Total	108,700	96	19,535	68	10,647	35	3,607

**Carrots, Fresh: Fertilizer Primary Nutrient Applications,  
 New York Surveyed and Total, 1998**

Primary Nutrient	Planted : Area	Appli-	Rate per	Rate per	Total
	: Acreage : Applied	cations	: Application	: Crop Year	: Applied
	: Acres	Percent	Number	Pounds per Acre	1,000 Lbs
New York:	500				
Nitrogen		87	2.7	42	118
Phosphate		87	1.0	72	76
Potash		87	1.9	85	163
Seven States 1/	108,700				
Nitrogen		96	3.3	55	187
Phosphate		68	1.3	103	143
Potash		35	1.6	56	94
					19,535
					10,647
					3,607

1/ States included are AZ, CA, FL, MI, NY, TX, and WA.

**Carrots, Fresh: Pesticide, Total Acreage,  
 Percent of Area Receiving Applications and Total Applied,  
 States Surveyed and Total, 1998**

State	Planted Acreage	Area Receiving and Total Applied					
		Herbicide	Insecticide 1/	Fungicide	Other Chemical	Percent 1,000 Lbs	Percent 1,000 Lbs
			Acres	Percent 1,000 Lbs	Percent 1,000 Lbs		
AZ 2/	2,500						
CA	86,500	90	129.2	38	28.1	63	460.8
FL 2/	6,800						
MI	5,100	94	7.0	48	9.1	63	10.9
NY 2/	500	83	0.5				
TX 2/	4,200	97	4.9				
WA 2/	3,100						
Total:	108,700	92	154.3	42	60.4	64	508.3
							23 4,229.6

1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

**Carrots, Fresh: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	: Area : Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:	:				
Fluazifop-P-butyl	:	15	1.5	0.15	0.23
Glyphosate	:	1	1.1	0.60	0.68
Linuron	:	90	1.6	0.58	0.94
Sethoxydim	:	3	1.0	0.15	0.16
Trifluralin	:	54	1.2	0.75	0.95
	:				
Insecticides:	:				
Carbaryl	:	1	1.7	0.90	1.58
Diazinon	:	17	1.3	1.61	2.16
Esfenvalerate	:	14	1.3	0.04	0.05
Malathion	:	3	1.8	1.27	2.39
Methomyl	:	6	1.2	0.55	0.67
	:				
Fungicides:	:				
Chlorothalonil	:	18	1.5	1.19	1.88
Copper hydroxide	:	4	2.9	0.64	1.88
Iprodione	:	16	1.7	0.86	1.52
Mefenoxam	:	36	1.8	0.16	0.29
Metalaxyll	:	4	2.4	0.21	0.52
Sulfur	:	19	1.4	13.77	20.23
	:				
Other Chemicals:	:				
Dichloropropene	:	13	1.2	88.37	110.50
Metam-sodium	:	12	1.0	178.05	194.36
					2,615.0

1/ Planted acres in 1998 for the 7 states surveyed were 108,700 acres.

States included are AZ, CA, FL, MI, NY, TX, and WA.

**Carrots, Fresh: Agricultural Chemical Applications,  
New York, 1998 1/**

Agricultural Chemical	: Area : Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:	:				
Linuron	:	83	2.7	0.46	1.28

1/ Planted acres in 1998 for New York were 500 acres.

**Carrots, Proc.: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
		Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent
CA	4,600	100	613	88	419	57	471
MI	1,700	81	99	81	87	83	206
NY	1,200	100	138	100	163	100	286
TX	2,900	100	255	24	120	11	9
WA	6,700	95	1,278	89	684	91	654
WI	4,200	86	283	85	261	100	798
Total	21,300	94	2,666	79	1,734	74	2,424

**Carrots, Proc.: Fertilizer Primary Nutrient Applications,  
New York and Total, 1998**

Primary Nutrient	Planted	Area	Appli-	Rate per	Rate per	Total
	Acreage	Applied	cations	Application	Crop Year	Applied
New York:	Acres	Percent	Number	Pounds per Acre	1,000 Lbs	
Nitrogen	1,200	100	1.1	97	116	138
Phosphate		100	1.0	136	136	163
Potash		100	1.1	200	238	286
Six States 1/	21,300					
Nitrogen		94	1.9	68	133	2,666
Phosphate		79	1.7	57	103	1,734
Potash		74	1.8	81	153	2,424

1/ States included are CA, MI, NY, TX, WA, and WI.

**Carrots, Proc.: Pesticide, Total Acreage,  
Percent of Area Receiving Applications and Total Applied,  
States Surveyed and Total, 1998**

State	Planted	Area Receiving and Total Applied					
		Acreage	Herbicide	Insecticide	Fungicide	Other Chemical	
			Acres	Percent	1,000 Lbs	Percent	1,000 Lbs
CA 1/	4,600	58	4.1	21	1.2		
MI	1,700	77	2.4	60	1.9	60	5.1
NY 1/	1,200						
TX 1/	2,900						
WA 1/	6,700	100	9.6	30	1.4	58	6.6
WI	4,200	100	7.2	100	2.1	100	25.3
Total:	21,300	88	26.7	45	9.4	60	49.3
						19	666.6

1/ Insufficient reports to publish data for one or more of the pesticide classes.

**Carrots, Proc.: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	: Area Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:	:				
Fluazifop-P-butyl	: 24	1.1	0.18	0.20	1.0
Linuron	: 86	1.9	0.59	1.13	20.6
Metribuzin	: 17	1.3	0.16	0.21	0.8
Sethoxydim	: 11	1.6	0.28	0.46	1.1
Trifluralin	: 21	1.1	0.64	0.72	3.3
	:				
Insecticides:	:				
Endosulfan	: 9	1.0	0.79	0.84	1.7
Esfenvalerate	: 31	3.6	0.03	0.12	0.8
	:				
Fungicides:	:				
Chlorothalonil	: 43	3.2	1.19	3.92	35.5
Copper hydroxide	: 9	1.9	0.68	1.34	2.6

1/ Planted acres in 1998 for the 6 states surveyed were 21,300 acres.  
States included are CA, MI, NY, TX, WA, and WI.

**Cauliflower: Fertilizer** Use by State, 1998  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
	Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent	1,000 Lbs
AZ	3,900	100	1,278	95	1,849	33	15
CA	40,000	100	9,148	79	2,195	97	3,022
MI	500	98	50	87	40	96	51
NY	1,400	99	207	99	132	99	155
TX	1/	100		100		80	
Total	1/	100		82		92	

1/ Planted acreage and total applied are not published to avoid disclosure.

**Cauliflower: Fertilizer** Primary Nutrient Applications,  
 New York and Total, 1998

Primary Nutrient	Planted Acreage	Area Applied	Appli- cations	Rate per Application	Rate per Crop Year	Total Applied	
						Acres	Percent
New York:	1,400						
Nitrogen		99	1.7	86	149		207
Phosphate		99	1.0	92	96		132
Potash		99	1.0	107	112		155
Five States 2/	1/						
Nitrogen		100	3.2	73	232		
Phosphate		82	1.6	68	112		
Potash		92	1.8	41	77		

1/ Planted acreage and total applied are not published to avoid disclosure.

2/ States included are AZ, CA, MI, NY, and TX.

**Cauliflower: Pesticide**, Total Acreage,  
 Percent of Area Receiving Applications and Total Applied,  
 States Surveyed and Total, 1998

State	Planted Acreage	Area Receiving and Total Applied					
		Herbicide	Insecticide 1/	Fungicide	Other Chemical		
					Acres	Percent	1,000 Lbs
AZ 2/	3,900				96	5.0	60
CA	40,000	56	31.9	96	104.6	16	5.7
MI 2/	500	13	0.1			20	0.4
NY	1,400	56	0.9	82	0.8	61	7.0
TX	3/						
Total:	3/	56		95		21	1

1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

3/ Planted acreage and total applied are not published to avoid disclosure.

**Cauliflower:** Agricultural Chemical Applications,  
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre	1,000 lbs	
<b>Herbicides:</b>					
DCPA	22	1.1	2.37	2.76	27.9
Oxyfluorfen	34	1.0	0.13	0.13	2.2
Trifluralin	9	1.4	0.57	0.80	3.4
<b>Insecticides:</b>					
Acephate	9	1.0	0.90	0.95	3.8
Azinphos-methyl	3	1.2	0.73	0.93	1.5
Bt ( <i>Bacillus thur.</i> ) 2/	23	1.6			
Carbaryl	*	2.2	0.96	2.16	0.2
Chlorpyrifos	61	1.2	0.88	1.09	31.1
Cypermethrin	15	1.2	0.09	0.12	0.8
Diazinon	13	1.0	0.64	0.67	3.9
Dimethoate	40	1.1	0.39	0.46	8.5
Disulfoton	4	1.4	0.87	1.25	2.6
Endosulfan	1	1.2	0.56	0.69	0.5
Esfenvalerate	41	1.4	0.04	0.05	1.0
Fonofos	1	1.1	1.36	1.59	1.1
Imidacloprid	53	1.6	0.08	0.13	3.3
Lambda-cyhalothrin	3	1.1	0.03	0.03	**
Methomyl	10	1.9	0.67	1.32	6.3
Naled	15	1.1	1.12	1.26	8.6
Oxydemeton-methyl	56	1.2	0.42	0.51	13.2
Permethrin	38	1.2	0.09	0.11	2.0
Pyrethrins	6	2.0	0.007	0.010	**
Spinosad	40	1.1	0.08	0.08	1.6
Tébufenozone	4	1.3	0.10	0.14	0.2
Thiodicarb	8	1.4	0.61	0.87	3.2
<b>Fungicides:</b>					
Benomyl	*	1.3	0.69	0.90	0.1
Chlorothalonil	9	1.5	1.51	2.39	9.9
Copper hydroxide	3	1.0	0.49	0.53	0.8
Iprodione	1	1.1	0.90	1.05	0.3
Maneb	6	1.4	1.18	1.68	4.5
Mefenoxam	4	1.0	0.11	0.12	0.2
Metalaxyl	2	1.1	0.12	0.14	0.1

\* Area applied is less than 1 percent.

\*\* Total applied is less than 50 pounds.

1/ Planted acres in 1998 for the 5 states surveyed are not published to avoid disclosure. States included are AZ, CA, MI, NY, and TX.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Cauliflower:** Agricultural Chemical Applications,  
New York, 1998 1/

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre	1,000 lbs	
<b>Herbicides:</b>					
Trifluralin	55	1.1	0.77	0.85	0.7
<b>Insecticides:</b>					
Bt ( <i>Bacillus thur.</i> ) 2/	18	3.4			
Lambda-cyhalothrin	16	1.6	0.03	0.04	*
Permethrin	55	5.1	0.08	0.44	0.3
<b>Fungicides:</b>					
Chlorothalonil	59	3.6	2.01	7.25	6.0

\* Total applied is less than 50 pounds.

1/ Planted acres in 1998 for New York were 1,400 acres.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Corn, Sweet, Fresh: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
		Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent
CA	28,800	98	7,736	85	2,617	38	1,946
FL	41,600	100	4,037	98	3,284	98	6,614
GA	19,000	99	3,628	98	1,230	98	2,884
IL	7,000	98	811	84	352	80	559
MI	13,000	96	1,316	89	670	93	1,107
NJ	11,300	95	2,409	94	1,450	94	1,455
NY	30,700	100	3,472	98	2,074	98	2,311
NC	7,100	96	760	93	398	94	719
OR	3,780	98	566	97	368	96	254
TX	5,900	41	332	38	114	34	83
WA	2,300	96	271	84	157	60	112
WI	8,700	98	834	82	347	96	844
Total	179,180	97	26,172	91	13,061	84	18,888

**Corn, Sweet, Fresh: Fertilizer Primary Nutrient Applications,  
 New York Surveyed and Total, 1998**

Primary Nutrient	Planted : Acreage	Area Applied	Appli- cations	Rate per Application	Rate per Crop Year	Total Applied
	Acres	Percent	Number	Pounds per Acre	1,000 Lbs	
New York:	30,700					
Nitrogen		100	1.8	60	113	3,472
Phosphate		98	1.0	64	69	2,074
Potash		98	1.0	70	77	2,311
Twelve States 1/	179,180					
Nitrogen		97	2.5	58	151	26,172
Phosphate		91	1.4	55	80	13,061
Potash		84	1.9	65	125	18,888

1/ States included are CA, FL, GA, IL, MI, NJ, NY, NC, OR, TX, WA, and WI.

**Corn, Sweet, Fresh: Pesticide, Total Acreage,  
 Percent of Area Receiving Applications and Total Applied,  
 States Surveyed and Total, 1998**

State	Planted : Acreage	Area Receiving and Total Applied					
		Herbicide		Insecticide 1/		Fungicide	Other Chemical
		Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent
CA 2/	28,800	65	51.6	95	153.0		
FL	41,600	79	73.3	98	181.1	76	105.3
GA 2/	19,000	84	84.2	90	75.3		
IL	7,000	88	14.4	89	4.8	5	0.3
MI 2/	13,000	78	31.8	76	14.7		
NJ	11,300	89	51.5	91	10.8	29	4.5
NY	30,700	95	102.2	85	21.1	3	0.4
NC 2/	7,100	81	13.2	75	12.1		
OR	3,780	96	10.4	38	4.5		
TX 2/	5,900	60	3.4	32	0.5		
WA	2,300	88	9.3	65	1.0		
WI 2/	8,700	87	17.6	77	3.3		
Total:	179,180	81	462.9	86	482.2	21	113.3

1/ Total applied excludes Bt's (*Bacillus thuringiensis*). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

**Corn, Sweet, Fresh: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	Area Applied	Appli- cations	Rate per Application	Rate per Crop Year	Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
<b>Herbicides:</b>					
2,4-D	: 1	1.0	0.45	0.46	0.9
Alachlor	: 15	1.2	2.14	2.58	69.5
Atrazine	: 57	1.0	1.04	1.11	113.2
Bentazon	: 5	1.0	0.58	0.59	5.4
Butylate	: 10	1.0	4.23	4.45	78.3
Cyanazine	: 6	1.6	1.90	3.19	35.0
Dicamba	: *	1.0	0.32	0.34	0.1
Dimethenamid	: 2	1.0	1.11	1.11	3.9
EPTC	: 5	1.0	2.28	2.33	21.5
Glyphosate	: 7	1.1	1.00	1.13	13.3
Metolachlor	: 31	1.0	1.74	1.85	104.3
Paraquat	: 1	1.0	0.57	0.59	1.2
Pendimethalin	: 4	1.4	1.02	1.43	9.8
Simazine	: *	1.0	1.31	1.32	0.7
Trifluralin	: *	1.0	0.78	0.78	0.4
	:				
<b>Insecticides:</b>					
Bt (Bacillus thur.) 2/	: 5	1.3			
Carbaryl	: 2	2.8	1.08	3.07	11.5
Carbofuran	: 1	1.3	0.73	1.02	2.4
Chlorpyrifos	: 32	1.9	0.76	1.49	86.0
Cyfluthrin	: 12	4.0	0.03	0.14	2.8
Diazinon	: 3	1.3	0.77	1.05	5.7
Endosulfan	: 1	1.4	0.71	1.05	1.7
Esfenvalerate	: 28	3.0	0.04	0.12	6.0
Lambda-cyhalothrin	: 35	2.9	0.02	0.06	3.8
Malathion	: *	1.4	0.96	1.37	0.6
Methomyl	: 48	6.6	0.34	2.27	193.9
Methyl parathion	: 15	1.2	0.61	0.78	21.6
Oxydemeton-methyl	: 5	1.0	0.39	0.39	3.6
Permethrin	: 12	2.2	0.14	0.30	6.2
Petroleum distillate	: 1	1.0	1.79	1.79	3.0
Phorate	: 12	1.8	0.52	0.95	20.9
Propargite	: 6	1.2	1.56	1.98	23.1
Tefluthrin	: 5	1.2	0.09	0.11	1.0
Terbufos	: 7	1.0	1.08	1.11	14.0
Thiodicarb	: 23	2.1	0.51	1.07	45.0
	:				
<b>Fungicides:</b>					
Chlorothalonil	: *	2.6	1.00	2.69	0.7
Mancozeb	: 15	3.1	0.94	2.98	78.5
Propiconazole	: 12	1.8	0.15	0.29	5.9

\* Area applied is less than 1 percent.

1/ Planted acres in 1998 for the 12 states surveyed were 179,180 acres.

States included are CA, FL, GA, IL, MI, NJ, NY, NC, OR, TX, WA, and WI.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Corn, Sweet, Fresh: Agricultural Chemical Applications,  
New York, 1998 1/**

Agricultural Chemical	: Area : Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
<b>Herbicides:</b>	:				
Alachlor	: 16	1.0	1.31	1.31	6.5
Atrazine	: 85	1.0	1.03	1.09	28.7
Bentazon	: 8	1.0	0.55	0.55	1.4
Cyanazine	: 6	2.3	1.13	2.62	4.5
Glyphosate	: 6	1.0	1.48	1.48	2.8
Metolachlor	: 71	1.1	2.28	2.52	55.0
Pendimethalin	: 6	1.0	1.41	1.43	2.5
	:				
<b>Insecticides:</b>	:				
Carbaryl	: 1	1.8	1.21	2.19	0.6
Carbofuran	: 5	1.0	0.86	0.86	1.3
Esfenvalerate	: 3	3.2	0.02	0.07	0.1
Lambda-cyhalothrin	: 60	1.4	0.03	0.04	0.7
Methomyl	: 13	2.4	0.36	0.88	3.4
Methyl parathion	: 6	1.1	0.37	0.42	0.8
Permethrin	: 15	2.2	0.15	0.33	1.5
Thiodicarb	: 51	1.0	0.55	0.60	9.4

1/ Planted acres in 1998 for New York were 30,700 acres.

**Corn, Sweet, Proc.: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
	Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent	1,000 Lbs
IL	14,600	100	2,123	64	615	57	801
MN	131,900	94	13,097	80	5,095	76	6,793
NY	42,000	100	3,905	99	2,669	92	3,430
OR	37,400	99	6,948	86	4,649	91	2,895
WA	101,500	98	19,020	86	7,876	58	4,916
WI	111,600	99	14,429	94	5,253	91	8,595
Total	439,000	98	59,523	87	26,159	78	27,432

**Corn, Sweet, Proc.: Fertilizer Primary Nutrient Applications,  
New York Surveyed and Total, 1998**

Primary Nutrient	Planted : Area	Appli-	Rate per	Rate per	Total	
	: Acreage	: Applied	: cations	: Application	: Crop Year	: Applied
	Acres	Percent	Number	Pounds per Acre	1,000 Lbs	
New York:	42,000					
Nitrogen		100	1.8	52	93	3,905
Phosphate		99	1.1	54	64	2,669
Potash		92	1.3	66	89	3,430
Six States 1/	439,000					
Nitrogen		98	1.9	71	139	59,523
Phosphate		87	1.2	57	69	26,159
Potash		78	1.2	64	80	27,432

1/ States included are IL, MN, NY, OR, WA, and WI.

**Corn, Sweet, Proc.: Pesticide, Total Acreage,  
Percent of Area Receiving Applications and Total Applied,  
States Surveyed and Total, 1998**

State	Planted Acreage	Area Receiving and Total Applied					
		: Herbicide	Insecticide 1/		Fungicide	Other Chemical	
			Acres	Percent	1,000 Lbs	Percent	1,000 Lbs
IL	14,600	98	40.0	98	17.8	48	1.3
MN 2/	131,900	95	315.1	85	51.3	24	4.5
NY	42,000	82	134.6	81	13.3	17	1.5
OR 2/	37,400	97	139.1	60	33.1		
WA	101,500	92	303.8	55	28.5		
WI 2/	111,600	97	308.1	76	29.8		
Total:	439,000	94	1,240.7	74	173.8	10	7.3
						4	*

\* Total applied is less than 50 pounds.

1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

**Corn, Sweet, Proc.: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	Area Applied	Appli- cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre	1,000 lbs	
<b>Herbicides:</b>					
2,4-D	7	1.0	0.39	0.41	11.8
Alachlor	19	1.0	2.14	2.27	189.3
Atrazine	51	1.1	0.78	0.89	199.7
Bentazon	24	1.1	0.60	0.66	69.5
Cyanazine	15	1.0	1.56	1.67	110.1
Dimethenamid	17	1.0	1.19	1.21	92.1
EPTC	7	1.0	3.73	3.80	111.3
Glyphosate	8	1.1	0.66	0.74	26.9
Metolachlor	37	1.0	1.96	2.08	338.5
Nicosulfuron	9	1.0	0.03	0.03	1.3
Paraquat	1	1.1	0.32	0.36	1.3
Pendimethalin	12	1.0	0.82	0.85	46.4
<b>Insecticides:</b>					
Carbaryl	1	1.4	1.02	1.52	4.4
Carbofuran	2	1.0	0.86	0.86	6.2
Chlorpyrifos	6	1.0	1.22	1.33	35.2
Cyfluthrin	4	1.6	0.03	0.04	0.7
Esfenvalerate	2	1.0	0.04	0.04	0.3
Ethoprop	2	1.0	1.94	1.94	16.8
Fonofos	*	1.0	1.03	1.03	1.3
Lambda-cyhalothrin	32	2.0	0.02	0.05	6.8
Methyl parathion	6	1.6	0.33	0.54	14.2
Permethrin	43	2.4	0.15	0.38	71.7
Tebupirimphos	1	1.0	0.14	0.14	0.4
Tefluthrin	4	1.0	0.08	0.08	1.4
Terbufos	1	1.0	1.18	1.18	5.7
<b>Fungicides:</b>					
Propiconazole	10	1.6	0.10	0.16	7.4
<b>Other Chemicals:</b>					
Aminopyridine	4	1.2	0.000	0.000	**

\* Area applied is less than 1 percent.

\*\* Total applied is less than 50 pounds.

1/ Planted acres in 1998 for the 6 states surveyed were 439,000 acres.  
States included are IL, MN, NY, OR, WA, and WI.

**Corn, Sweet, Proc.: Agricultural Chemical Applications,  
New York, 1998 1/**

Agricultural Chemical	Area Applied	Appli- cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre	1,000 lbs	
<b>Herbicides:</b>					
2,4-D	5	1.1	0.26	0.28	0.6
Alachlor	16	1.0	2.08	2.24	15.2
Atrazine	69	1.5	0.84	1.31	38.2
Bentazon	25	1.9	0.67	1.31	13.7
Cyanazine	5	1.2	1.45	1.76	3.4
Metolachlor	52	1.1	1.92	2.18	47.9
Pendimethalin	24	1.0	1.16	1.26	12.9
<b>Insecticides:</b>					
Cyfluthrin	10	1.1	0.03	0.04	0.1
Lambda-cyhalothrin	68	1.7	0.02	0.04	1.2
Tefluthrin	11	1.0	0.12	0.12	0.5
Terbufos	4	1.0	1.03	1.03	1.7
<b>Fungicides:</b>					
Propiconazole	17	1.9	0.11	0.22	1.5

1/ Planted acres in 1998 for New York were 42,000 acres.

**Cucumbers, Fresh: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
		Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent
CA	6,300	90	723	81	541	76	485
FL	9,400	100	816	12	120	100	979
GA	14,000	99	2,303	52	870	99	2,092
MI	7,000	97	669	95	464	96	1,036
NJ	3,100	97	439	100	335	100	381
NY	3,800	98	321	98	281	98	537
NC	6,300	99	563	98	434	93	738
TX	1,700	99	328	90	126	95	79
Total	51,600	98	6,162	67	3,171	95	6,327

**Cucumbers, Fresh: Fertilizer Primary Nutrient Applications,  
 New York Surveyed and Total, 1998**

Primary Nutrient	Planted	Area	Appli-	Rate per	Rate per	Total
	Acreage	Applied	cations	Application	Crop Year	Applied
	Acres	Percent	Number	Pounds per Acre	1,000 Lbs	
New York:	3,800					
Nitrogen		98	1.4	60	86	321
Phosphate		98	1.0	72	76	281
Potash		98	1.3	105	144	537
Eight States 1/	51,600					
Nitrogen		98	11.2	11	122	6,162
Phosphate		67	1.7	53	92	3,171
Potash		95	10.9	12	129	6,327

1/ States included are CA, FL, GA, MI, NJ, NY, NC, and TX.

**Cucumbers, Fresh: Pesticide, Total Acreage,  
 Percent of Area Receiving Applications and Total Applied,  
 States Surveyed and Total, 1998**

State	Planted Acreage	Area Receiving and Total Applied					
		Herbicide	Insecticide 1/	Fungicide	Other Chemical		
					Acres	Percent	1,000 Lbs
CA 2/	6,300	15	2.6	84	3.3	66	5.0
FL 2/	9,400	7	0.7	97	9.8	94	53.4
GA	14,000	11	0.9	42	4.9	99	59.8
MI 2/	7,000	74	15.2	67	6.9	77	27.5
NJ 2/	3,100	52	7.4	88	3.5	82	10.3
NY 2/	3,800	73	4.5	28	0.7		
NC	6,300	40	2.3	51	3.9	51	10.2
TX 2/	1,700	73	1.7	62	0.9	5	14.9
Total:	51,600	32	35.3	64	33.9	75	168.7
						1	61.8

1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

**Cucumbers, Fresh: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	Area Applied	Appli- cations	Rate per Application	Rate per Crop Year	Total Applied
	: Percent	Number	Pounds per Acre	1,000 lbs	
<b><u>Herbicides:</u></b>					
Bensulide	6	1.0	4.68	4.97	15.2
Clomazone	3	1.0	0.38	0.38	0.6
Ethalfluralin	21	1.4	0.85	1.22	13.1
Glyphosate	1	1.2	0.96	1.16	0.7
Naptalam	4	1.0	1.44	1.44	2.9
Paraquat	4	1.0	0.63	0.67	1.3
Sethoxydim	1	1.0	0.19	0.19	0.1
Trifluralin	2	1.0	0.66	0.67	0.8
<b><u>Insecticides:</u></b>					
Acephate	5	2.0	0.68	1.38	3.2
Azinphos-methyl	1	2.2	0.50	1.13	0.8
Bt (Bacillus thur.) 2/	11	2.5			
Carbaryl	8	1.9	0.88	1.75	6.9
Carbofuran	3	1.0	0.48	0.51	0.8
Diazinon	3	1.4	1.00	1.47	2.1
Endosulfan	20	1.7	0.62	1.06	11.1
Esfenvalerate	14	2.2	0.04	0.09	0.7
Imidacloprid	1	1.7	0.19	0.32	0.1
Malathion	1	1.4	0.73	1.05	0.7
Methomyl	7	2.2	0.42	0.97	3.4
Oxamyl	2	1.8	0.69	1.24	1.2
Permethrin	14	2.7	0.11	0.29	2.0
<b><u>Fungicides:</u></b>					
Benomyl	12	1.7	0.18	0.32	2.0
Chlorothalonil	59	2.7	1.33	3.71	112.1
Copper hydroxide	12	2.3	0.63	1.51	9.0
Copper resinate	2	1.6	0.09	0.15	0.2
Copper sulfate	1	1.9	0.57	1.13	0.8
Fosetyl-al	11	1.0	1.65	1.68	9.4
Mancozeb	7	2.3	1.31	3.10	10.8
Maneb	15	1.9	0.99	1.92	14.8
Metasulphite	6	1.6	0.19	0.31	1.0
Triadimefon	1	1.7	0.07	0.13	0.1
<b><u>Other Chemicals:</u></b>					
Methyl bromide	*	1.0	181.14	181.14	39.4

\* Area applied is less than 1 percent.

1/ Planted acres in 1998 for the 8 states surveyed were 51,600 acres.  
States included are CA, FL, GA, MI, NJ, NY, NC, and TX.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Cucumbers, Fresh: Agricultural Chemical Applications,  
New York, 1998 1/**

Agricultural Chemical	Area Applied	Appli- cations	Rate per Application	Rate per Crop Year	Total Applied
	: Percent	Number	Pounds per Acre	1,000 lbs	
<b><u>Insecticides:</u></b>					
Carbaryl	5	3.0	0.89	2.68	0.5
Permethrin	1	2.6	0.15	0.39	0.0
<b><u>Fungicides:</u></b>					
Chlorothalonil	15	1.7	1.31	2.35	1.4

1/ Planted acres in 1998 for New York were 3,800 acres.

**Lettuce, Head: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Percent of Acres Treated and Total Applied						
	Planted	Nitrogen	Phosphate	Potash			
	Acreage				Acres	Percent	1,000 Lbs
AZ	54,600	99	19,581	94	13,327	10	249
CA	142,000	93	25,696	75	15,953	80	11,325
NJ	1,300	71	182	71	107	71	168
NY	700	98	55	98	107	98	107
Total	198,600	94	45,514	80	29,494	61	11,849

**Lettuce, Head: Fertilizer Primary Nutrient Applications,  
 New York Surveyed and Total, 1998**

Primary Nutrient	Planted	Area	Appli-	Rate per	Rate per	Total
	Acreage	Applied	cations	Application	Crop Year	Applied
		Acres	Percent	Number	Pounds per Acre	1,000 Lbs
<b>New York:</b>		700				
Nitrogen	:		98	1.0	78	80
Phosphate	:		98	1.0	153	157
Potash	:		98	1.0	154	157
<b>Four States:</b>	1/	198,600				
Nitrogen	:		94	3.2	75	243
Phosphate	:		80	1.8	102	186
Potash	:		61	1.6	59	98

1/ States included are AZ, CA, NJ, and NY.

**Lettuce, Head: Pesticide, Total Acreage,  
 Percent of Area Receiving Applications and Total Applied,  
 States Surveyed and Total, 1998**

State:	Area Receiving and Total Applied						
	Planted	Herbicide	Insecticide	1/	Fungicide	Other Chemical	
	Acreage						
			1,000 Lbs	Percent	1,000 Lbs	Percent	1,000 Lbs
AZ 2/	54,600	51	55.3	91	111.6	77	142.3
CA	142,000	53	107.9	97	309.3	88	659.2
NJ 2/	1,300			68	1.0		
NY 2/	700			97	0.6		
Total:	198,600	52	168.2	95	422.5	85	803.9
						*	84.2

\* Area applied is less than one percent.

1/ Total applied excludes Bt's (*Bacillus thuringiensis*). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

**Lettuce, Head: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	: Area Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
<b>Herbicides:</b>					
Benefin	: 10	1.1	1.09	1.24	24.3
Bensulide	: 11	1.0	3.43	3.68	78.7
Glyphosate	: 4	1.0	0.83	0.84	6.3
Paraquat	: 2	1.0	0.73	0.74	3.3
Pronamide	: 35	1.1	0.71	0.79	54.8
Sethoxydim	: 1	1.2	0.23	0.27	0.6
<b>Insecticides:</b>					
Abamectin	: 16	1.1	0.007	0.008	0.2
Acephate	: 55	1.3	0.81	1.11	120.3
Azadirachtin	: 3	1.0	0.008	0.008	*
Bt (Bacillus thur.) <sup>2/</sup>	: 31	1.3			
Carbaryl	: 1	1.0	1.38	1.39	1.8
Cypermethrin	: 55	1.4	0.08	0.11	12.3
Cyromazine	: 1	1.0	0.09	0.10	0.1
Diazinon	: 16	1.2	0.63	0.80	26.1
Dimethoate	: 21	1.2	0.22	0.28	11.9
Disulfoton	: 7	1.0	1.42	1.52	21.5
Endosulfan	: 7	1.1	0.78	0.90	12.3
Esfenvalerate	: 3	1.1	0.04	0.04	0.3
Imidacloprid	: 45	1.2	0.08	0.10	9.3
Lambda-cyhalothrin	: 8	1.4	0.03	0.04	0.6
Malathion	: 2	1.1	1.69	1.92	7.6
Methomyl	: 55	1.6	0.68	1.11	121.9
Oxamyl	: 0	1.0	0.89	0.89	0.2
Oxydemeton-methyl	: 4	1.0	0.44	0.46	3.9
Permethrin	: 77	1.9	0.15	0.29	43.8
Piperonyl butoxide	: 2	1.0	0.44	0.47	2.0
Pyrethrins	: 4	1.2	0.008	0.010	0.1
Rotenone	: 4	1.2	0.005	0.007	*
Spinosad	: 30	1.2	0.08	0.10	6.2
Tebufenozide	: 16	1.0	0.11	0.11	3.6
Thiodicarb	: 11	1.0	0.53	0.58	12.8
Tralomethrin	: 7	1.1	0.02	0.02	0.4
Zeta-cypermethrin	: 27	1.1	0.04	0.05	2.6
<b>Fungicides:</b>					
Copper hydroxide	: **	1.1	0.25	0.28	0.2
Dicloran	: 6	1.0	1.38	1.41	17.3
Fosetyl-al	: 43	1.4	2.38	3.47	297.7
Iprodione	: 22	1.1	0.84	0.97	41.6
Maneb	: 76	1.9	1.35	2.69	408.0
Mefenoxam	: 6	1.0	0.21	0.22	2.6
Metazaryl	: 2	1.0	0.30	0.32	1.1
Vinclozolin	: 19	1.0	0.84	0.88	34.1

\* Total applied is less than 50 pounds.

\*\* Area applied is less than 1 percent.

1/ Planted acres in 1998 for the 4 states surveyed were 198,600 acres.

States included are AZ, CA, NJ, and NY.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Onions, Dry: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
		Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent
AZ	2,500	100	528	99	570		
CA	39,000	99	8,840	83	3,816	63	1,508
GA	15,000	100	2,031	100	1,808	100	2,754
MI	4,900	100	545	98	555	98	990
NY	13,100	100	1,602	98	1,472	98	2,227
OR	19,800	99	5,395	93	2,552	84	2,330
TX	16,200	100	3,289	95	1,617	66	545
WA	20,650	96	4,497	96	2,313	92	2,163
WI	2,100	100	222	96	205	100	590
Total	133,250	99	26,949	92	14,908	79	13,107

**Onions, Dry: Fertilizer Primary Nutrient Applications,  
 New York Surveyed and Total, 1998**

Primary Nutrient	Planted	Area	Appli-	Rate per	Rate per	Total
	Acreage	Applied	cations	Application	Crop Year	Applied
	Acres	Percent	Number	Pounds per Acre		1,000 Lbs
New York:	13,100					
Nitrogen		100	1.4	86	122	1,602
Phosphate		98	1.2	91	115	1,472
Potash		98	1.2	141	174	2,227
Nine States 1/	133,250					
Nitrogen		99	4.1	49	204	26,949
Phosphate		92	1.7	70	121	14,908
Potash		79	2.0	61	124	13,107

1/ States included are AZ, CA, GA, MI, NY, OR, TX, WA, and WI.

**Onions, Dry: Pesticide, Total Acreage,  
 Percent of Area Receiving Applications and Total Applied,  
 States Surveyed and Total, 1998**

State	Planted Acreage	Area Receiving and Total Applied					
		Herbicide	Insecticide 1/		Fungicide	Other Chemical	
			Acres	Percent	1,000 Lbs	Percent	1,000 Lbs
AZ	2,500	88	7.5	86	0.8	79	7.8
CA	39,000	82	106.6	67	36.1	86	177.9
GA 2/	15,000	99	5.2	76	12.4	100	153.4
MI	4,900	98	18.1	98	7.5	97	32.9
NY	13,100	97	47.7	99	21.7	99	211.5
OR	19,800	99	52.0	96	38.9	98	131.1
TX	16,200	55	25.7	84	15.9	74	67.0
WA	20,650	80	23.9	59	8.7	59	37.6
WI 2/	2,100	100	11.4	95	0.4	99	21.0
Total:	133,250	85	298.1	78	142.4	86	840.2
							24 2,177.9

1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

**Onions, Dry: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	Area Applied	Appli- cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre	1,000 lbs	
<b>Herbicides:</b>					
2,4-D	*	1.8	0.72	1.34	0.6
Bensulide	5	1.0	3.92	3.99	25.7
Bromoxynil	41	1.5	0.16	0.24	13.3
Clethodim	5	1.3	0.14	0.19	1.2
DCPA	14	1.1	5.36	6.29	115.3
Fluazifop-P-butyl	22	1.2	0.21	0.25	7.4
Glyphosate	12	1.2	0.59	0.72	11.3
Metolachlor	2	1.2	2.36	2.91	7.7
Oxyfluorfen	60	2.1	0.08	0.18	14.6
Paraquat	*	1.1	0.78	0.92	0.2
Pendimethalin	40	1.7	1.02	1.79	95.5
Sethoxydim	6	1.2	0.23	0.29	2.5
Trifluralin	2	1.0	0.61	0.62	1.4
<b>Insecticides:</b>					
Azinphos-methyl	5	1.7	0.49	0.85	5.6
Bt (Bacillus thur.) 2/	*	1.5			
Chlorpyrifos	33	1.0	1.03	1.11	49.1
Cypermethrin	16	1.9	0.09	0.16	3.5
Diazinon	9	1.3	1.73	2.28	26.1
Dimethoate	1	1.1	0.41	0.48	0.4
Lambda-cyhalothrin	31	2.5	0.03	0.07	2.8
Malathion	4	1.4	1.28	1.84	10.5
Methomyl	10	1.9	0.48	0.92	12.0
Methyl parathion	6	1.8	0.51	0.95	8.0
Oxamyl	5	1.4	0.83	1.20	8.5
Permethrin	18	2.5	0.13	0.34	8.1
Zeta-cypermethrin	10	2.2	0.04	0.09	1.3
<b>Fungicides:</b>					
Chlorothalonil	55	3.2	1.20	3.88	284.1
Copper ammonium	3	1.6	0.30	0.48	1.7
Copper hydroxide	28	2.4	0.72	1.76	66.0
Fosetyl-al	5	1.4	1.34	1.88	12.6
Iprodione	19	2.2	0.60	1.36	35.4
Mancozeb	43	3.2	1.44	4.73	272.1
Maneb	18	3.5	1.62	5.70	136.3
Mefenoxam	16	1.8	0.09	0.17	3.7
Metalaxyl	26	1.4	0.17	0.24	8.3
Sulfur	4	2.0	1.92	3.83	17.9
Vinclozolin	1	1.3	0.61	0.85	1.2
<b>Other Chemicals:</b>					
Chloropicrin	3	1.0	34.78	35.26	154.4
Dichloropropene	5	1.0	168.98	171.77	1,066.3
Maleic hydrazide	17	1.0	1.82	1.89	41.8
Metam-sodium	5	1.0	119.40	125.15	907.7

\* Area applied is less than 1 percent.

1/ Planted acres in 1998 for the 9 states surveyed were 133,250 acres.

States included are AZ, CA, GA, MI, NY, OR, TX, WA, and WI.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Onions, Dry: Agricultural Chemical Applications,  
New York, 1998 1/**

Agricultural Chemical	: Area Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:	:				
Bromoxynil	: 34	1.0	0.20	0.21	0.9
Fluazifop-P-butyl	: 47	1.0	0.18	0.20	1.2
Glyphosate	: 12	2.8	0.78	2.19	3.6
Metolachlor	: 11	1.1	2.12	2.38	3.3
Oxyfluorfen	: 53	6.5	0.009	0.06	0.4
Pendimethalin	: 97	2.7	1.10	3.00	38.1
	:				
Insecticides:	:				
Chlorpyrifos	: 49	1.0	1.67	1.70	10.9
Cypermethrin	: 15	1.7	0.09	0.15	0.3
Lambda-cyhalothrin	: 51	3.9	0.02	0.09	0.6
Methyl parathion	: 7	4.2	0.57	2.42	2.1
Permethrin	: 49	4.4	0.12	0.55	3.5
Zeta-cypermethrin	: 25	4.2	0.04	0.17	0.6
	:				
Fungicides:	:				
Chlorothalonil	: 78	6.4	0.88	5.67	57.7
Copper hydroxide	: 7	1.7	0.36	0.63	0.6
Iprodione	: 44	3.0	0.36	1.12	6.5
Mancozeb	: 56	6.9	1.69	11.71	85.8
Maneb	: 35	7.4	1.77	13.13	59.4
Metalaxyl	: 23	1.1	0.15	0.17	0.5
	:				
Other Chemicals:	:				
Maleic hydrazide	: 26	1.0	2.60	2.60	8.9

1/ Planted acres in 1998 for New York were 13,100 acres.

**Peas, Green, Proc.: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
		Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent
MN	88,000	60	1,357	60	2,044	61	3,280
NY	19,600	100	812	100	1,407	97	1,396
OR	31,300	92	867	30	390	6	154
WA	56,400	53	1,026	67	3,003	57	2,603
WI	57,400	89	1,983	79	1,991	90	3,798
Total	252,700	72	6,045	65	8,835	63	11,231

**Peas, Green, Proc.: Fertilizer Primary Nutrient Applications,  
New York Surveyed and Total, 1998**

Primary Nutrient	Planted	Area	Appli-	Rate per	Rate per	Total
	Acreage	Applied	cations	Application	Crop Year	Applied
	Acres	Percent	Number	Pounds per Acre	1,000 Lbs	
New York:	19,600					
Nitrogen		100	1.0	41	41	812
Phosphate		100	1.0	72	72	1,407
Potash		97	1.0	73	73	1,396
Five States 1/	252,700					
Nitrogen		72	1.2	27	33	6,045
Phosphate		65	1.0	50	54	8,835
Potash		63	1.0	67	71	11,231

1/ States included are MN, NY, OR, WA, and WI.

**Peas, Green, Proc.: Pesticide, Total Acreage,  
Percent of Area Receiving Applications and Total Applied,  
States Surveyed and Total, 1998**

State	Planted	Area Receiving and Total Applied					
		Acreage	Herbicide	Insecticide 1/	Fungicide	Other Chemical	
						Acres	Percent
						1,000 Lbs	1,000 Lbs
MN	88,000	92	70.2	30	1.0		
NY 2/	19,600	95	18.3				
OR	31,300	95	26.2	66	5.6		
WA 2/	56,400	98	75.9	67	13.9	4	*
WI	57,400	93	41.7	18	1.4	:	
Total:	252,700	94	232.3	38	21.9	**	1.1
						1	*

\* Total applied is less than 50 pounds. \*\* Area applied is less than one percent.

1/ Total applied excludes Bt's (*Bacillus thuringiensis*). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

**Peas, Green, Proc.: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	: Area Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:	:				
Bentazon	: 26	1.1	0.66	0.79	52.0
Clomazone	: 10	1.0	0.39	0.41	10.3
Glyphosate	: 5	1.0	0.35	0.38	5.1
Imazethapyr	: 32	1.0	0.02	0.02	1.8
MCPA	: 7	1.0	0.19	0.20	3.8
MCPB	: 14	1.0	0.56	0.59	21.1
Metolachlor	: 4	1.0	1.73	1.88	17.4
Metribuzin	: 5	1.1	0.17	0.19	2.5
Pendimethalin	: 28	1.0	0.63	0.64	45.8
Quizalofop-ethyl	: 3	1.0	0.07	0.07	0.5
Sethoxydim	: 4	1.0	0.19	0.20	1.9
Triallate	: 9	1.0	1.08	1.09	24.6
Trifluralin	: 31	1.0	0.55	0.56	43.6
	:				
Insecticides:	:				
Diazinon	: 2	1.0	0.58	0.58	3.6
Dimethoate	: 22	1.2	0.17	0.20	11.1
Esfenvalerate	: 20	1.0	0.03	0.04	1.8
Malathion	: 1	1.0	0.98	0.98	1.8
Methomyl	: *	1.0	0.45	0.46	0.3
Phosmet	: 2	1.1	0.71	0.81	3.1
	:				
Other Chemicals:	:				
Cytokinins	: 1	1.2	**	**	**

\* Area applied is less than 1 percent.

\*\* Total applied is less than 50 pounds. Rate is less than .0005 pounds per acre.

1/ Planted acres in 1998 for the 5 states surveyed were 252,700 acres.

States included are MN, NY, OR, WA, and WI.

**Peas, Green, Proc.: Agricultural Chemical Applications,  
New York, 1998 1/**

Agricultural Chemical	: Area Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:	:				
Bentazon	: 86	1.0	0.54	0.54	9.1
MCPB	: 81	1.0	0.42	0.44	6.9
Sethoxydim	: 5	1.0	0.22	0.22	0.2
Trifluralin	: 11	1.0	0.69	0.70	1.5

1/ Planted acres in 1998 for New York were 19,600 acres.

**Strawberries: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
		Acres	Percent	1,000 Lbs	Percent	1,000 lbs	Percent
CA	24,200	96	4,460	81	1,622	79	2,152
FL	6,200	100	590	94	356	100	661
MI	1,500	95	102	68	67	76	98
NJ	500	95	52	95	46	95	48
NY	1,700	93	119	81	78	83	82
NC	1,700	97	243	83	137	92	293
OR	4,500	96	326	94	447	95	391
WA	1,500	93	80	78	154	81	97
WI	1,200	90	119	80	90	80	56
Total	43,000	96	6,091	84	2,997	85	3,878

**Strawberries: Fertilizer Primary Nutrient Applications,  
New York Surveyed and Total, 1998**

Primary Nutrient	Planted	Area	Appli-	Rate per	Rate per	Total
	Acreage	Applied	cations	Application	Crop Year	Applied
	Acres	Percent	Number	Pounds per Acre	1,000 Lbs	
New York:	1,700					
Nitrogen		93	1.4	53	75	119
Phosphate		81	1.2	44	57	78
Potash		83	1.2	46	59	82
Nine States 1/	43,000					
Nitrogen		96	12.3	12	147	6,091
Phosphate		84	11.0	8	83	2,997
Potash		85	12.6	8	107	3,878

1/ States included are CA, FL, MI, NJ, NY, NC, OR, WA, and WI.

**Strawberries: Pesticide, Total Acreage,  
Percent of Area Receiving Applications and Total Applied,  
States Surveyed and Total, 1998**

State	Planted Acreage	Area Receiving and Total Applied					
		Herbicide	Insecticide 1/		Fungicide	Other Chemical	
			Acres	Percent	1,000 Lbs	Percent	1,000 Lbs
CA	24,200	4	6.6	93	68.1	93	561.5
FL	6,200	92	11.6	98	26.3	100	237.2
MI 2/	1,500	82	3.7	82	2.7	80	11.4
NJ 2/	500	46	0.9	53	0.4	78	1.4
NY 2/	1,700	74	4.4	71	1.9	55	3.3
NC	1,700	43	0.7	72	2.6	78	12.0
OR	4,500	61	8.9	85	6.0	95	31.6
WA 2/	1,500	68	1.5	65	0.8	96	6.6
WI 2/	1,200	95	2.8	87	1.9	78	5.1
Total:	43,000	35	41.1	89	110.7	91	870.1
						63	7,030.7

1/ Total applied excludes Bt's (*Bacillus thuringiensis*). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

**Strawberries: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	Area Applied	Appli- cations	Rate per Application	Rate per Crop Year	Total Applied
	: Percent	Number	Pounds per Acre	1,000 lbs	
<b>Herbicides:</b>					
2,4-D	4	1.0	0.98	1.07	1.9
DCPA	*	1.1	7.29	8.52	1.7
Glyphosate	6	1.4	1.26	1.84	4.4
Napropamide	14	1.1	2.94	3.39	21.0
Oxyfluorfen	2	1.0	0.29	0.30	0.3
Paraquat	14	1.8	0.69	1.27	7.6
Sethoxydim	5	1.1	0.26	0.29	0.7
Simazine	6	1.0	0.92	0.97	2.6
Terbacil	5	1.3	0.28	0.37	0.9
<b>Insecticides:</b>					
Abamectin	47	2.0	0.02	0.03	0.7
Azinphos-methyl	5	1.2	0.62	0.77	1.8
Bifenthrin	17	1.7	0.10	0.17	1.2
Bt (Bacillus thur.)	31	3.7			
Carbaryl	12	1.3	1.03	1.35	6.8
Carbofuran	*	1.0	1.96	1.96	0.4
Chlorpyrifos	26	1.1	0.95	1.08	11.8
Diazinon	8	1.3	0.68	0.95	3.4
Dicofol	3	1.9	0.88	1.75	2.5
Endosulfan	12	1.2	0.80	1.01	5.2
Fenbutatin-oxide	8	1.6	0.72	1.19	3.9
Fenpropothrin	10	1.5	0.30	0.48	2.2
Hexythiazox	7	1.2	0.36	0.47	1.5
Malathion	21	1.7	1.68	2.98	27.4
Methomyl	20	4.1	0.57	2.39	21.0
Methoxychlor	1	1.2	0.57	0.73	0.4
Naled	12	2.1	0.84	1.83	9.5
Oxydemeton-methyl	5	1.0	0.45	0.47	1.1
Potassium salts	1	2.5	4.50	11.38	7.2
Propargite	3	1.1	0.73	0.85	1.0
Pyrethrins	1	1.3	0.03	0.04	**
<b>Fungicides:</b>					
Benomyl	44	2.7	0.45	1.21	22.7
Captan	75	6.5	1.86	12.25	393.5
Chlorothalonil	1	2.4	0.49	1.18	0.5
Copper ammonium	1	2.5	0.28	0.72	0.2
Copper hydroxide	10	1.8	0.57	1.06	4.4
Copper resinate	5	3.1	0.09	0.29	0.6
Copper sulfate	3	1.2	0.35	0.44	0.5
Dodine	1	1.6	1.01	1.65	0.5
Fosetyl-al	8	1.5	2.82	4.48	15.0
Iprodione	46	2.5	0.78	1.95	38.8
Mefenoxam	3	1.3	0.40	0.55	0.8
Metalaxyl	3	1.0	0.61	0.63	0.7
Myclobutanil	34	2.9	0.10	0.29	4.2
Sulfur	46	3.8	3.07	11.73	234.3
Thiophanate-methyl	7	2.4	0.68	1.64	4.9
Thiram	49	3.4	1.62	5.54	117.9
Vinclozolin	31	1.7	0.83	1.49	20.0

-- continued

**Strawberries:** Agricultural **Chemical** Applications,  
States Surveyed, 1998 1/ (*continued*)

Agricultural Chemical	: Area Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
Other Chemicals:	:				
Chloropicrin	: 37	1.3	81.21	106.92	1,701.1
Metaldehyde	: 4	1.2	0.89	1.10	1.8
Methyl bromide	: 50	1.0	245.03	245.03	5,305.2

\* Area applied is less than 1 percent.

\*\* Total applied is less than 50 pounds.

1/ Planted acres in 1998 for the 9 states surveyed were 43,000 acres.

States included are CA, FL, MI, NJ, NY, NC, OR, WA, and WI.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Strawberries:** Agricultural **Chemical** Applications,  
New York, 1998 1/

Agricultural Chemical	: Area Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:	:				
2,4-D	: 34	1.0	1.14	1.23	0.7
DCPA	: 4	1.2	5.98	7.48	0.5
Napropamide	: 46	1.0	3.43	3.64	2.8
Sethoxydim	: 14	1.1	0.28	0.30	0.1
Terbacil	: 46	1.0	0.35	0.37	0.3
:					
Insecticides:	:				
Azinphos-methyl	: 17	1.0	0.45	0.47	0.1
Chlorpyrifos	: 25	1.1	0.96	1.09	0.5
Endosulfan	: 24	1.9	0.80	1.60	0.6
Malathion	: 16	1.3	0.96	1.33	0.4
:					
Fungicides:	:				
Benzomyl	: 17	1.6	0.29	0.48	0.1
Captan	: 37	1.8	2.16	3.92	2.4
Vinclozolin	: 31	1.6	0.71	1.17	0.6

1/ Planted acres in 1998 for New York were 1,700 acres.

**Tomatoes, Fresh: Fertilizer Use by State, 1998**  
 Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
		Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent
CA	32,000	100	12,553	77	8,242	69	5,691
FL	40,600	100	11,065	65	4,577	100	20,268
GA	3,600	100	869	50	198	100	1,504
MI	3,000	94	326	91	165	93	805
NJ	3,900	95	470	95	475	95	513
NY	3,400	92	280	91	280	91	275
NC	2,300	98	235	97	495	98	582
TX	1,700	98	160	98	146	69	70
Total	90,500	99	25,958	73	14,578	88	29,708

**Tomatoes, Fresh: Fertilizer Primary Nutrient Applications,  
New York Surveyed and Total, 1998**

Primary Nutrient	Planted	Area	Appli-	Rate per	Rate per	Total
	Acreage	Applied	cations	Application	Crop Year	Applied
	Acres	Percent	Number	Pounds per Acre		1,000 Lbs
New York:	3,400					
Nitrogen		92	1.7	52	89	280
Phosphate		91	1.4	63	90	280
Potash		91	1.4	62	89	275
Eight States 1/	90,500					
Nitrogen		99	9.1	32	290	25,958
Phosphate		73	6.7	33	221	14,578
Potash		88	9.7	38	374	29,708

1/ States included are CA, FL, GA, MI, NJ, NY, NC, and TX.

**Tomatoes, Fresh: Pesticide, Total Acreage,  
Percent of Area Receiving Applications and Total Applied,  
States Surveyed and Total, 1998**

State	Planted	Area Receiving and Total Applied					
		Acreage	Herbicide	Insecticide 1/	Fungicide	Other Chemical	
						Acres	Percent
						1,000 Lbs	1,000 Lbs
CA	32,000	27	5.9	91	33.1	93	485.9
FL	40,600	83	30.0	99	105.0	99	1,071.7
GA	3,600	11	0.2	99	6.6	96	75.7
MI 2/	3,000	82	2.7	82	18.6	89	104.9
NJ 2/	3,900	50	3.4	80	8.3	90	29.5
NY	3,400	37	1.5	49	2.0	70	16.9
NC	2,300	81	2.6	92	3.7	93	24.2
TX 2/	1,700	59	1.2	89	2.7	52	2.4
Total:	90,500	57	47.5	92	180.0	94	1,811.2
						49	7,834.2

1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

2/ Insufficient reports to publish data for one or more of the pesticide classes.

**Tomatoes, Fresh: Agricultural Chemical Applications,  
States Surveyed, 1998 1/**

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre	1,000 lbs	
<b>Herbicides:</b>					
Glyphosate	4	1.1	0.64	0.72	2.4
Metribuzin	24	1.0	0.44	0.47	10.2
Napropamide	17	1.0	0.56	0.56	8.4
Oxyfluorfen	1	1.0	0.17	0.18	0.2
Paraquat	23	1.2	0.62	0.78	16.1
Pebulate	2	1.0	1.86	1.90	2.7
Sethoxydim	3	1.3	0.28	0.38	1.0
Trifluralin	7	1.0	0.63	0.66	4.3
<b>Insecticides:</b>					
Abamectin	18	1.1	0.008	0.01	0.2
Acephate	*	2.0	0.60	1.22	0.1
Azinphos-methyl	7	2.6	0.42	1.13	7.4
Bt (Bacillus thur.) 2/	52	4.1			
Carbaryl	8	1.2	0.87	1.11	7.6
Chlorpyrifos	5	1.9	0.39	0.76	3.7
Cyfluthrin	9	4.0	0.03	0.12	1.0
Cyromazine	5	1.9	0.10	0.19	0.8
Diazinon	2	2.0	0.67	1.38	2.1
Dicofol	2	1.8	0.37	0.70	1.3
Dimethoate	13	2.1	0.20	0.44	5.1
Endosulfan	16	3.2	0.59	1.91	28.3
Esfenvalerate	39	2.7	0.03	0.08	2.8
Imidacloprid	28	1.7	0.15	0.25	6.5
Lambda-cyhalothrin	4	3.8	0.02	0.07	0.3
Malathion	*	2.0	1.16	2.33	0.4
Methamidophos	17	5.7	0.65	3.75	58.1
Methomyl	27	2.1	0.58	1.25	31.0
Oxamyl	5	1.2	0.78	1.00	4.5
Permethrin	37	5.0	0.07	0.35	11.5
Pyrethrins	1	1.7	0.007	0.01	**
Rotenone	*	1.2	0.04	0.05	**
Spinosad	13	3.1	0.07	0.23	2.7
<b>Fungicides:</b>					
Azoxystrobin	15	1.9	0.08	0.16	2.1
Benomyl	13	2.5	0.26	0.66	7.8
Chlorothalonil	47	4.7	1.14	5.44	233.4
Copper ammonium	1	4.9	0.23	1.12	0.6
Copper chloride hyd.	1	3.5	1.08	3.85	2.5
Copper hydroxide	60	8.5	0.88	7.54	408.8
Copper oxychlo. sul.	1	7.5	1.34	10.09	7.4
Copper resinate	4	6.6	0.11	0.71	2.4
Copper sulfate	1	1.6	0.52	0.88	1.1
Fosetyl-al	6	1.6	0.82	1.34	7.1
Mancozeb	52	8.4	1.47	12.35	581.4
Maneb	23	4.4	1.34	5.91	120.3
Mefenoxam	7	1.0	0.11	0.11	0.7
Metalaxyll	7	3.2	0.12	0.39	2.4
Myclobutanil	1	1.8	0.10	0.18	0.1
Propamocarb hydroch.	2	1.5	0.72	1.15	2.6
Sulfur	22	1.4	15.36	21.66	426.2
<b>Other Chemicals:</b>					
Chloropicrin	22	1.0	47.25	47.38	933.5
Metam-sodium	2	1.2	57.68	73.62	141.4
Methyl bromide	47	1.0	158.46	159.55	6,756.6

\* Area applied is less than 1 percent.

\*\* Total applied is less than 50 pounds.

1/ Planted acres in 1998 for the 8 states surveyed were 90,500 acres.

States included are CA, FL, GA, MI, NJ, NY, NC, and TX.

2/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Tomatoes, Fresh: Agricultural Chemical Applications,  
New York, 1998 1/**

Agricultural Chemical	: Area : Applied	: Appli- cations	: Rate per Application	: Rate per Crop Year	: Total Applied
	: Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:	:				
Metribuzin	: 23	1.7	0.26	0.45	0.4
Napropamide	: 5	1.0	1.04	1.04	0.2
Trifluralin	: 29	1.0	0.80	0.84	0.8
	:				
Insecticides:	:				
Azinphos-methyl	: 7	1.9	0.52	1.01	0.2
Carbaryl	: 6	4.4	0.90	3.94	0.8
Endosulfan	: 5	2.4	0.89	2.16	0.4
Imidacloprid	: 18	3.1	0.03	0.11	0.1
Permethrin	: 6	2.4	0.10	0.23	0.1
	:				
Fungicides:	:				
Chlorothalonil	: 45	3.4	1.67	5.82	9.0
Copper hydroxide	: 14	4.2	0.60	2.53	1.2
Mancozeb	: 26	3.6	1.31	4.79	4.2
Maneb	: 9	2.7	1.48	4.13	1.3

1/ Planted acres in 1998 for New York were 3,400 acres.

**Survey Procedures:** Large screening samples were drawn from the NASS List Sampling Frame. This extensive sampling frame covers all types of farms and accounts for about 82% of all land in farms in the U.S. The screening samples were selected in such a way as to insure that all farms on the list had a possibility of being selected. Farms that were more likely to be producers of crops of interest were more likely to be in the sample. The sampled farms were screened to determine the presence of all the crops of interest. From this subpopulation of operations identified as producing the crop of interest, a subsample of farms was selected in such a way as to insure that each identified producer had an opportunity to be selected. In general, larger farms were more likely to be selected than smaller farms.

**Estimation Procedures:** The chemical applications data, reported by product name or trade name are reviewed within state and across states for reasonableness and consistency. This review compares reported data with manufacturer's recommendations and with data from other farm operators using the same product. Following this review, product information are converted to an active ingredient level. The chemical usage estimates in this publication consist of survey estimates of those active ingredients.

Estimates of the total amount of active ingredient applied are based on the acreage estimates published in the annual NASS report "Vegetables - 1998 Summary" [Vg 1-2(99)c] released on January 28, 1999. The estimates for total amount applied will not be revised even if there are subsequent revisions to acreage for a given crop.

Detailed data within a table may not multiply across or add down due to independent rounding of the published values.

**Reliability:** The probability nature of the survey provides expansion of data so that the estimates are statistically representative of chemical use on the targeted crops in the surveyed States. The reliability of these survey results are affected by non-sampling errors and sampling variability. The sampling variability, expressed as a percentage of the estimate, is referred to as the coefficient of variation (cv).

Non-sampling errors are errors that occur during a survey process, and unlike sampling variability, are difficult to measure. They may be caused by interviewers failing to follow instructions, poorly worded questions, non-response, problematic survey procedures, or data handling between collection and publication. In these surveys, all survey procedures and analysis were carried out in a consistent and orderly manner to minimize the occurrence of these types of errors.

Variability for estimates of acres treated will be higher than the variability for estimates of application rates. This is because application rates have a narrower range of responses, are recommended by the manufacturer of the product, and are generally followed.

Sampling variability of the estimates differed considerably by chemical and crop. In general, the more often the chemical was applied, the smaller the sampling variability. For example, estimates of use of a commonly used product, such as Carbaryl, exhibit less variability than a more rarely used product. For more commonly used chemicals, cv's will range from 1-30 percent at the U.S. level and 5-65 percent at the State level. Some rarer items will have cv's above 100 percent. These items have insufficient data for publication and these instances are noted.

# Terms and Definitions

**Active ingredient:** The active ingredient is the specific chemical which kills or controls the target pests. Usage data are reported by pesticide product and are converted to an amount of active ingredient. A single method of conversion has been chosen for active ingredients having more than one way of being converted. For example in this report, copper compounds are expressed in their metallic copper equivalent, and others such as 2,4-D and glyphosate are expressed in their acid equivalent.

**Agricultural chemicals:** The phrase agricultural chemicals refers to the active ingredients in fertilizers and pesticides.

**Application Rates:** The application rates refer to the average number of pounds of a fertilizer primary nutrient or pesticide active ingredient applied to an acre of land. Rate per acre is the average number of pounds applied in one application. Rate per crop year is the average number of pounds applied counting multiple applications. Number of applications is the average number of times a treated acre receives a specific agricultural chemical.

**Area applied:** The area that represents the percentage of crop acres receiving one or more applications of a specific agricultural chemical. This report does not contain acre treatments. However, acre treatments can be calculated by multiplying the acres planted by the percent of area applied and the average number of applications.

**Common name:** The common name is an officially recognized name for an active ingredient. This report shows active ingredient by common name.

**Crop year:** A crop year refers to the period immediately following harvest for the previous crop through harvest of the current crop.

**Fertilizer:** The term fertilizer refers to applications of the primary nutrients, nitrogen, phosphate, and potash.

**Pesticides:** As defined by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), pesticides include any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

The four classes of pesticides presented in this report and the pests targeted are: herbicides - weeds, insecticides - insects, fungicides - fungi, and other chemicals - other forms of life. Miticides and nematicides are included as insecticides while soil fumigants, growth regulators, defoliants, and desiccants are included as other chemicals. This report excludes pesticides used for seed treatments, for spot treatments, and for postharvest applications to the commodity.

**Trade name:** A trademark name given to a specific formulation of a pesticide product. A formulation contains a specific concentration of the active ingredient, carrier materials, and other ingredients such as emulsifiers and wetting agents. Some formulations as in the case of pre-mixes, can contain more than one active ingredient.

# Trade Name, Common Name, and Pesticide Class

The following is a list of the common name, associated class and trade name of active ingredients in this publication. The classes are herbicides (H), insecticides (I), fungicides (F), and other chemicals (O). This list is provided as an aid in reviewing pesticide data. Pre-mixes are not cataloged. The list is not complete for all pesticides used on field crops and NASS does not mean to imply the use of any specific trade name.

Class :	Common Name	:	Trade Name
H,O	2,4-D		several
I	Abamectin		Agri-Mek, Avid, Zephyr
I	Acephate		Orthene, Payload
H	Acetochlor		Harness, Topnotch
H	Alachlor		Lasso
I	Aldicarb		Temik
H	Ametryn		Evik
O	Aminopyridine		Avitrol
O	Ammonium soap		Hinder
F	Anilazine		Dyrene
H	Atrazine		AAtrex, Atrazine
I	Azadirachtin		Align, Margosan-O
I	Azinphos-methyl		Guthion
F	Azoxystrobin		Abound, Quadris
F	Basic copper sulfate		Top Cop, Tri-Basic
H	Benefin		Balan
F	Benomyl		Benlate
H	Bensulide		Pefar
H	Bentazon		Basagran, Pledge
I	Bifenthrin		Brigade, Capture, Talstar
O	Brodifacoum		several
H	Bromacil		Hyvar
H	Bromoxynil		Brominal, Buctril
I	BT (Bacillus thuringiensis)		several
I	Buprofezin		Applaud
H	Butylate		Genate, Sutan
F	Captan		Captan
I,O	Carbaryl		Savit, Sevin
I	Carbofuran		Furadan
H	Chloramben		Amiben
O	Chloropicrin		several
F	Chlorothalonil		Bravo, Daconil
O	Chlorpropham		Furloe 20G
I	Chlorpyrifos		Dursban, Lorsban
H	Clethodim		Select
H	Clomazone		Command
H	Clopyralid		Reclaim, Stinger
F	Copper ammonium carbonate		Copper-Count-N
F	Copper chloride hyd.		copper oxychloride
F	Copper hydroxide		several

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Class :	Common Name	: Trade Name
F	Copper oxide	Nordox
F	Copper oxychloride sulfate	C-O-C-S
F	Copper resinate	Tenn-Cop
F	Copper sulfate	Copper sulfate
I	Cryolite	Kryocide
H	Cyanazine	Bladex, Conquest, Cycle, Extrazine
H	Cycloate	Ro-Neet
I	Cyfluthrin	Baythroid
I	Cypermethrin	Ammo, Cymbush
I	Cyromazine	Trigard
O	Cytokinins	Burst, Promalin, Triggr
H	DCPA	Dacthal
I	Diazinon	several
H	Dicamba	Banvel
H	Dicamba, Potassium salt	Marksman
O	Dichloropropene	Telone
H	Diclofop-methyl	Hoelon
F	Dicloran	Allisan, Botran
I	Dicofol	Kelthane
H	Diethylatyl-ethyl	Antor
H	Dimethenamid	Frontier, Guardsman
I	Dimethoate	several
F	Dimethomorph	Acrobat
F	Dinocap	Karathane
O	Diphacinone	Ramik
H,O	Diquat	Diquat
I	Disulfoton	Di-Syston
H	Diuron	Direx, Karmex
F	Dodine	Cyprex, Syllit
H	Disodium Methane arsonate	DSMA
I	Endosulfan	Thiodan
H	EPTC	Eptam, Eradicane, Genep
I	Esfenvalerate	Asana
H	Ethalfluralin	Curbit, Sonalan
O	Ethephon	Cerone, Ethrel, Prep
I	Ethion	Ethion
H	Ethofumesate	Nortron
I	Ethoprop	Holdem, Mocap
I	Ethyl parathion	several
O	Farnesol	Stirrup
I	Fenamiphos	Nemacur
F	Fenbuconazole	RH-7592
I	Fenbutatin-oxide	Vendex
H	Fenoxaprop-ethyl and-p-ethyl	Option, Whip

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Class :	Common Name	: Trade Name
I	Fenpropathrin	Danitol
H	Fluazifop-P-butyl	Fusilade
H	Flumetsulam	Broadstrike
H	Fomesafen	Reflex
I	Fonofos	Dyfonate
F	Fosetyl-al	Aliette
O	Garlic oil	Envirepel, Nutripel
O	Gibberellic acid	GibGro, ProGibb, ProVide
H,O	Glyphosate	Ranger, Rattler, Rodeo, Roundup
O	Gossyplure	Checkmate, NoMate, Stirrup
I	Hexythiazox	Savey
O	IBA	PGR IV
H	Imazethapyr	Pursuit
I	Imidacloprid	Admire
F	Iprodione	Rovral
H	Lactofen	Cobra
I	Lambda-cyhalothrin	Karate, Saber, Warrior
I	Lindane	Isotox, Lindane
H	Linuron	Linex, Lorox
I	Malathion	several
O	Maleic hydrazide	Royal MH-30, Super Sprout Stop
F	Mancozeb	several
F	Maneb	several
H	MCPA	several
H	MCPB	Thistrol
F	Mefenoxam	Ridomil Gold
O	Mepiquat chloride	Pix, Ponnax
F	Metalaxyll	Ridomil
O	Metaldehyde	Metaldehyde
O	Metam-sodium	Vapam
I	Methamidophos	Monitor
I	Methiocarb	Mesurol
I	Methomyl	Lannate
I	Methoxychlor	several
O	Methyl bromide	several
I	Methyl parathion	several

Class :	Common Name	: Trade Name
F	Metiram	Polyram
H	Metolachlor	Dual
H	Metribuzin	Axiom, Lexone, Sencor
I	Mevinphos	Duraphos, Phosdrin
F	Myclobutanil	Nova, Rally
I	Myrothecium verrucaria	Ditera
I	Naled	Dibrom
H	Napropamide	Devrinol
H	Naptalam	Alanap
I	Hydrophobic Extract of Neem Oil	Neemgard
I	Neem Oil, Hydrophobic extract	Trilogy
O	Nerolidol	Stirrup M
H	Nicosulfuron	Accent
H	Norflurazon	Evital, Solicam, Zorial
I	Oxamyl	Vydate
I	Oxydemeton-methyl	Metastyox-R
H	Oxyfluorfen	Goal
I	Oxythioquinox	Morestan
H,O	Paraquat	Cyclone, Gramoxone, Starfire
F	PCNB	Terraclor
I	Petroleum distillate	several
H	Pebulate	Tillam
H	Pendimethalin	Prowl
I	Permethrin	Ambush, Pounce
I	Petroleum distillate	several
H	Phenmedipham	Spin-Aid
I	Phorate	Thimet
I	Phosmet	Imidan
I	Piperonyl butoxide	Butacide, Incite, PBO-8
F	Potassium bicarbonate	Kaligreen
I	Potassium salts	M-Pede, Safer Insecticidal Soap
H	Prometryn	Caparol, Cotton-Pro
H	Pronamide	Kerb
H	Propachlor	Ramrod
F	Propamocarb hydrochloride	Tattoo
H	Propanil	Stam

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Class :	Common Name	: Trade Name
I	Propargite	Comite, Omite
F	Propiconazole	Banner, Orbit, Tilt
I	Pseudomonas cepacia type Wis.	Deny
I	Pyrethrins	several
H	Pyridate	Tough
H	Quizalofop-ethyl	Assure
H	Rimsulfuron	Basis
I	Rotenone	Rotenone
I	Sabadilla	Sabadilla
H	Sethoxydim	Poast
I	Silicon dioxide	Celite, Diatomaceous earth
H	Simazine	Princep, Simazine
I	Soybean oil	Golden Natur'l Spray Oil
I	Spinosad	SpinTor, Success, Tracer
F	Streptomycin	Agri-Strep
O	Strychnine	several
H	Sulfosate	Touchdown
I,F	Sulfur	several
F	Tebuconazole	Folicur, Lynx
I	Tebufenozide	Confirm
I	Tebupirimphos	Aztec
I	Tefluthrin	Force
H	Terbacil	Sinbar
I	Terbufos	Counter
I	Thiodicarb	Larvin
F	Thiophanate-methyl	Topsin
F,O	Thiram	Thiram
I	Toxaphene	Hels-Mate
I	Tralomethrin	Scout
F	Triadimefon	Bayleton
H	Triallate	Far-Go
H	Tribenuron-methyl	Express
I	Trichlorfon	Dylox, Proxol
O	Tridencen-1-yl acetate	Checkmate TPWF, Nomate TPW
H	Trifluralin	Treflan, Trific, Trilin
F	Triforine	Funginex
F	Vinclozolin	Ronilan
I	Xylene	Hels-Mate
I	Zeta-cypermethrin	Fury, Mustang
F	Ziram	Ziram

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